

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC SCIENCE

JSS 1

SUB-THEME: LEARNING ABOUT OUR ENVIRONMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Family Health	Students should be able to: 1. define sanitation and state its importance and methods used. 2. define nutrition 3. explain balanced diet and give 2 examples. 4. define drug abuse and state its effects.	1. Sanitation 2. Nutrition 3. Drug & Substance Abuse	Guides students to: 1. Define sanitation. 2. Leads discussion on the importance of sanitation. 3. Define nutrition and give examples of a balanced diet. 4. Provide different food samples showcasing a balanced diet. 5. Plan a balanced diet. 6. Define drug abuse and give examples of drug. 7. State the different effects of drug abuse	1. Bring samples of equipment used in sanitation. 2. Participate in class discussions and group work. 3. Plan a balanced menu for breakfast, lunch and supper. 4. Observe sanitation in the school and home environment 5. Define drug abuse and state its effects.	1. Toiletries. 2. Cleaning agents. 3. Sanitation Equipment like rakes, shovels, brooms. 4. Raw foodstuff samples. 5. Photographs of drug addicts 6. Charts. 7. Posters.	Students to: 1. define sanitation 2. state the importance of sanitation. 3. define nutrition 4. list 3 methods of keeping their school and home neat. 5. give examples of different foodstuffs in a balanced diet. 6. explain what is meant by drug abuse 7. state different effects of drug/substance abuse.

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Environmental Pollution	Students should be able to: 1. Define air, soil and water pollution. 2. identify various pollutants and their effects. 3. List various causes of pollution; 4. mention ways of reducing the risk of pollution. 5. describe pollution control	1. Definition of air, soil and water pollution 2. Causes of air, soil and water pollution e.g. - domestic/industrial waste - fertilizer/ insecticide - agricultural - chemical - non-biodegradable - oil spillage 3. Consequences of pollution such as -respiratory tract infection -water- borne diseases -destruction of soil organisms and poor plant yield 4. Control measures	1. Leads discussion on air, soil and water pollution. 2. Organizes a visit to: - a site of polluted water body, - a nearby industry or place polluted by a spoilt egg/potato - site of polluted soil. 3. Uses charts and films to lead discussion on different problems of pollution and the remedies. 4. Guides students to investigate the effect of pollution on soil, plants, animals, environment. etc. 5. Guides activities on purification of air, soil and water using different techniques. 6. Leads discussion on pollution control by water boiling and filtration, planting of flowers and crops.	1. Participate in the various discussions and group activities. 2. Visit identified polluted sites. 3. Write down chalkboard/whiteboard summary 4. Carry out activity on water boiling, filtration, flower planting, film watching and recording of soil pollutants from visited sites.	1. Charts, films and pictures 2. Utensils and materials for filtration - Bucket - Funnel - Stove - Pot - Filter paper - Sieve.	Students to: 1. define pollution 2. name types of pollution and give specific examples. 3. state 3 major causes of air, soil and water pollution in the community. 4. briefly explain the consequences of pollution to the environment and man. 5. write a report on the field visit to polluted sites. 6. state effects of pollutants. 7. Suggest at least two ways on how to control pollution

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Living and Non - Living Things	Students should be able to: 1. recognize that all living and non-living things are made up of matter; 2. list the three states of matter 3. collect and identify samples of living and non-living things in their environment; 4. list the distinguishing characteristics of living and non-living things. 5. state the importance of plants and animals to human beings	1. Meaning, identification and classification of matter 2. States of matter 3. Characteristics of living and non-living things. 4. Examples, Characteristics and importance of plants and animals. 5. Differences between plants and animals. 6. examples, properties, uses and importance of living and non-living things.	1. Explains the meaning of matter. 2. Takes students on nature walk to collect different samples of matter. 3. Guides discussion on the three states of matter. 4. Guides class discussion on: - differences between plants and animals. - characteristics of plants and animals (movement, feeding, reproduction in relation to associated organs;) - importance and uses of plants and animals.	1. Take a nature walk and collect samples of matter 2. Observe the collected specimens and group them into living and non-living matters. 3. Observe the collections and identify distinguishing characteristics of plants and animals. 4. Watch films illustrating activities(movement, feeding, reproduction). 5. Show films illustrating activities(movement, feeding, reproduction)	1. Life specimens of plants and animals. 2. Old newspapers and Drawing books 3. Charts/Posters, Films, 4. Plastic containers and Polythene bags. 5. Sort out collections into plants and animals. 6. Press plant materials, dry insect samples and prepare plant and animal albums. 7. Participate in class discussion.	Students to: 1. define matter 2. list 3 states of matter and classify objects according to their state of matter 3. name four examples of plants and animals. 4. state four differences between plants and animals. 5. list three important uses of plants and animals. 6. list four characteristics of living and non-living things. 7. describe self as a living thing

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	6. collect samples of some living and non-living things, sort out the materials and explain the uses.	7. Classification of non-living things into metals and non-metals	5. Guides students to group living matter as plants and animals 6. Guides students to Prepare plant and insect albums 7. Takes students for nature walk to observe and collect living and non-living materials. 8. Guides students to differentiate between the materials and sort them into metals and non-metals.	6. Copy notes from the board and group activities. 7. Group materials into metals and non-metals		8. list five activities of living thing and state the organs associated with each. 9. list five examples each of metals and non-metals

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Energy	Students should be able to: 1. explain the meaning of energy; 2. state and describe the sources of energy 3. name forms of energy; 4. explain how energy is transformed from one form to another; 5. state the uses of energy	1. Meaning of energy. 2. Sources of energy 3. Forms of energy 4. Transformation of energy 5. Uses of energy	1. Initiates discussion. 2. Leads students to mention sources of energy. 3. Provides some materials for activities to illustrate forms of energy. 4. Uses the activities in (3) to illustrate transformation of energy. 5. Provides charts on uses of energy for discussion	1. Participate in discussion. 2. Mention sources of energy. 3. Carry out activities on energy 4. Describe the actions as indicated on the chart	1. Samples of coal 1. Crude oil 2. Gas 3. Chart of the sun. 4. Battery 5. Torch light 6. Turning fork 7. Chart showing a moving car, cooking food, electrical heater, torch light.	Students to: 1. explain the meaning of energy. 2. state three sources of energy and describe two of them. 3. state four forms of energy. 4. explain the energy transfer in the following: striking a match stick, kicking a ball, heating water. 5. state four uses of energy.

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Renewable and Non-Renewable Energy	Students should be able to: 1. explain the meanings of renewable and non-renewable energy; 2. give examples of renewable and Non-renewable energy; 3. state the implications of misuse of non-renewable energy; 4. describe how energy generation affects quality of life.	1. Renewable and non-renewable energy. - meaning - examples - use and misuse 2. Energy and society	1. Initiates and leads discussion on renewable and non-renewable energy. 2. Leads discussion on conservation of crude oil, felling most of the trees in the forest, overloading the hydroelectric power stations. 3. Leads discussion on lack of energy for individuals to do their work e.g. welding	1. Participate in the discussion. 2. Identify renewable and non-renewable energy. 3. Participate in the discussion and note the main ideas.	1. Charts showing sources of renewable and non-renewable energy. 2. Pictures or charts of renewable energy sources e.g. solar plates, windmill, and hydroelectric source. 3. Samples of non-renewable energy sources (coal, crude oil, wood, gas) 4. Chart on bunkering, felling of trees, electronic equipment repair.	Students to: 1. explain the meanings of renewable and non-renewable energy. 2. give 3 examples each of renewable and non-renewable energy. 3. state one effect of wrong use of non-renewable energy. 4. state three reasons for careful use of coal, or petroleum products. 5. state three ways through which lack of energy supply affects societal development.

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Forces	Students should be able to: 1. explain the meaning of force; 2. identify contact and non-contact forces; 3. differentiate between magnetic and gravitational forces; 4. measure and calculate gravitational force (GF) when mass and height are provided; 5. describe how to set up a balanced force. 6. explain the meaning of friction, its uses, advantages and disadvantages	1. Meaning and types of force: - contact and non-contact forces; - magnetic and gravitational forces. 2. Calculation of gravitational force. 3. Balanced and unbalanced forces 4. Friction: uses, advantages and disadvantages	1. Guides students to push and pull, squeeze, bend and stretch objects 2. Provides chart showing contact and non-contact forces. 3. Guides students to calculate gravitational force using the formula $G_F = mgh$. 4. Guides students to set up balanced and unbalanced forces. 5. Provides materials and direct illustration of frictional forces; 6. Initiates and leads discussion on advantages and disadvantages of friction.	1. Carry out activities as directed by teacher e.g. push and pull. 2. Identify contact and non-contact forces. 3. Carry out activity and calculate GF 4. Practice setting up balanced and unbalanced forces. 5. Illustrate frictional force between objects, noting advantages and disadvantages of friction.	1. Fixed door paper, spring, rubber 2. Charts showing contact and non-contact forces 3. Objects of known mass, metre-rule, Newton-metre 4. Knife edge and slotted weights. 5. Toy car, cardboards paper, rough surface.	Students to: 1. explain the meaning of force. 2. name two contact and two non-contact forces. 3. state the differences between magnetic and gravitational forces. 4. calculate gravitational force of an object when mass and height are given. 5. describe how to set up a balanced force. 6. explain the meaning of friction and state two uses and disadvantages of friction.

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SUB-THEME: SCIENCE AND DEVELOPMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
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	Students should be able to: 1. explain gravitation, weightlessness, satellite, and space travel; 2. state the effects of gravitation; 3. identify the components of the solar system and explain the rotation and revolution of the earth and the moon; 4. illustrate the eclipse of the sun and the moon. 5. explain the seasons of the year.	1. Gravitation and weightlessness 2. The earth in space 3. Space travel 4. Satellite	1. Demonstrates the effect of gravitational pull on objects. 2. Leads students to demonstrate the effect of gravitation on objects. 3. Guides class discussion on the effect of gravitation. 4. Uses model/charts to explain the satellite, solar system, rotation and revolution of the earth and the moon. 5. Demonstrates eclipse of the sun using balls of different sizes and flash light. 6. Leads discussion on seasons of the year. 7. Introduces space travel using a film or picture clippings on space travel. 8. Leads class discussion on purpose, benefits and dangers of space travel. 9. leads discussion on the launching of Nigeria SAT 1	1. Watch and comment on film/picture clippings. 2. Participate in class and group work discussions. 3. Carry out demonstrations on gravitation, activities on weighing themselves and recording of individual weights. 4. Read more on Space Travel. 5. Repeat teacher demonstrations of the eclipses. 6. Draw and label the solar system. 7. Copy board summary.	1. Charts/diagrams of the solar system. 2. Charts/global models/diagrams on rotation and revolution of the earth , moon and eclipse. 3. Balls 4. Flash light 5. Weighing scales: bathroom scales 6. films/picture clippings on space travel. 7. Globe	Students to: 1. define gravitational pull. 2. describe the effect of gravitation on stone, feather and list components of the solar system. 4. explain what causes: - night and day - seasons of the year 5. explain what causes of eclipse of the sun and the moon 6. explain space travel 7. state two purposes of space travel. 8. mention 2 benefits and 2 dangers of space travel 9. mention 3 uses of satellite

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SUB-THEME: UNDERSTANDING BASIC TECHNOLOGY

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Understanding Technology	Student should be able to: 1. identify technology related occupations; 2. state the importance of technology.	1. Technology related professions 2. Importance of technological literacy.	1. Explains that technology is universal. 2. Illustrates that both males and females should study technology.	1. Participate in class discussion. 2. Cite role models of males and females in technology. 3. Enumerate at least 3 importance of technology in everyday life.	Pictures of males and females working in industries.	Student to: 1. mention at least five technology related occupations; 2. state reasons why everyone in the society should be technologically literate. 3. mention male and female role models in technology in the locality/Nigeria.

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SUB-THEME: SAFETY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
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Safety Guidelines	Students should be able to: - list safety guidelines for pedestrians. - demonstrate how pedestrians are to cross road. - identify safety guidelines for cyclist, - explain safety guidelines for motorists.	- Safety guidelines for pedestrians. - Safety guidelines for cyclists/ motor cyclists - Safety guidelines for motorists.	- Enumerate safety guidelines for pedestrians e.g. -walking on the left hand side facing oncoming vehicle. -wearing bright coloured materials while walking in the night. - Demonstrates safety guidelines for road crossing. - Explains safety guidelines for cyclists e.g. -use of safety helmet -use of riders protection e.g. padded clothes, bright colour jacket etc. - Explains safety guidelines for motorists' e.g. -use of seat belts -Obeying all traffic regulations - ensure proper vehicle maintenance.	- Participate in mentioning safety guidelines - Write down safety guidelines. - Observe teacher's demonstration of safety guidelines for: (a)pedestrians, (b) cyclists; (c) motorists, etc.	- Safety helmets - Pictures, video clips - samples of road signs and road markings.	Students to: - list at least three safety guidelines for pedestrians crossing a road - demonstrate how pedestrians are to cross a road. - state at least five safety guidelines for motor cyclists. - mention at least five safety guidelines for motorists.

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Workshop Safety	Students should be able to: 1. state causes of workshop accidents; 2. list types of accidents that occur in workshop places; 3. state workshop safety rules and regulations; 4. identify some workshop accidents preventive measures.	1. Causes of workshop accidents. 2. Type of workshop accidents 3. Workshop Safety devices. 4. Workshop Safety Rules and Regulations. 5. Accident prevention techniques.	1. Explains causes of workshop accidents. 2. Guides students' discussion on types of accidents that occur in workshop places. 3. Takes students to workshop to observe some safety devices. 3. Explains safety rules and regulations. 4. Demonstrates different ways of preventing workshop accidents.	1. Participate actively in class discussions. 2. Visit Workshops, observe and identify workshop safety devices. 3. Observe safety rules and regulations whenever in workshop places. 3. Practicesome workshop accidents preventive measures.	1. Pictures and charts showing different safe work habits and attitudes. 2. Safety devices; e.g. fire extinguishers, sand bucket , etc.	Students to: 1. list at least three causes of workshop accidents; 2. state four types of workshop accidents; 3. list two types of workshop safety devices; 4. list 3 workshop safety rules and regulations 5. explain accident prevention measures.

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SUB-THEME: MATERIALS AND PROCESSING

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
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Properties of Materials	Students should be able to: 1. identify, classify and describe the properties of wood. 2. identify, classify and describe the properties of metals. 3. identify the properties of ceramics and glass.	1. Wood - Identification by colour: mahogany, afara, obeche, opepe, mansonia, etc. - Classification: hardwood and softwood. - Properties. 2. Metals - Identification by their physical properties, e.g. lustre, density, sound, malleability, ductility, etc. - Classification: ferrous and non-ferrous with examples. - Forms: e.g. rods, bars, pipes, wires, plates, sheet, etc. 3. Ceramics and glass - Types: bricks, tiles, bottles, cups, pots, etc. - Properties: brittle, heat resistant, etc.	1. Displays specimens of various wood types. 2. Names, labels, classifies and describes the properties of wood. 3. Displays specimens of various metals. 4. Emphasizes recognition of metals. 5. Stresses specific use of ferrous and non-ferrous metals. 6. Displays glass and ceramic products and describes their properties. 7. Emphasizes how properties determine usage.	1. Examine specimens of wood. 2. Visit a timber yard or shed. 3. Carryout simple tests to differentiate hard wood from soft wood. 4. Examine specimens of metals. 5. Undertake field trips to wood and metal industries. 6. Examine various types of ceramics and glass.	1. Specimens of various types of wood and metal. 2. Various types of ceramic and glass products. 3. Timber Shed 4. Wood, Plastics and Ceramic Industries.	Students to: 1. identify, classify and describe properties of wood and metals. 2. identify ceramics and glass and describe their properties.

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Building Materials	Students should be able to: 1. Identify various types of building materials in their locality; 2. Mention uses of building materials.	1. Common building materials: cement, sand, gravel, metal, plastics, wood, glass, leaves, ceramics, grass, etc. 2. Uses of the building materials.	1. Guides students to identify building materials. 2. Explains the uses of the different building materials.	1. Identify various types of building. 2. Discuss the uses of the various types of building materials.	1. Cement, sand, gravel, Blocks, etc 2. Pictures, Charts and Posters on different types of building Materials.	Students to: 1. list 5 types of building materials; 2. explain the uses of each type of building materials.

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SUB-THEME:: DRAWING PRACTICE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
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Drawing Instruments and Materials	Students should be able to: 1. identify, drawing instruments and materials; 2. demonstrate correct techniques for handling drawing instruments and materials; 3. construct shapes with drawing instruments and materials; 4. care for drawing instruments and materials.	1. Drawing instruments and materials: tee-square, set square, pair of compasses, French curves, etc. 2. Basic techniques of handling drawing instruments and materials; 3. Uses of drawing instruments and materials; 4. Care of Drawing Instruments and Materials.	1. Displays drawing instruments and materials. 2. Guides students to identify and name drawing instruments and materials. 3. Demonstrates the uses of the different instruments and materials. 2. Demonstrates correct techniques of handling and caring for drawing instruments and materials. 3. Corrects inappropriate practices.	1. Examine, name and describe drawing instruments and materials. 2. Watch teacher's demonstration. 3. Practice appropriate techniques for handling drawing instruments 4. Use various drawing instruments to construct shapes. 4. Practice appropriate methods of caring for the various drawing instruments.	Drawing instruments and materials e.g. compass, divider, ruler, protractor, sets-square, T-square, etc.	Students to: 1. name at least five drawing instruments and materials; 2. state the uses of the drawing instruments; 3. handle drawing instruments correctly; 4. construct shapes with drawing instruments; 5. explain how to care for and maintain their drawing instruments.

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SUB-THEME:: DRAWING PRACTICE

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Board Practice	Students should be able to: 1. fix drawing sheet to the board. 2. sharpen pencils to conical point and knife edge. 3. draw border, horizontal and vertical lines 4. place and draw the title block. 5. write freehand legible letters and numerals.	1. Basic board practice: - Setting drawing paper on the board. - Sharpening pencil to conical point and knife edge. - Using the tee and set squares for drawing boarder, horizontal and vertical lines. - Positioning and drawing the title block. - Freehand Writing of letters and numerals.	1. Demonstrates correct techniques for: (a) Setting drawing paper on board; (b) Sharpening of pencils; (c) Using set –square and T-square for drawing border, horizontal and vertical lines; (d) positioning and drawing of title block; (e) freehand writing of letters and numerals.	1. Watch teacher's demonstration 2. Practice the techniques.	Drawing instruments and materials e.g. compass, divider, ruler, protractor, sets-square, T-square, etc.	Students to: 1. fix drawing sheet to the board. 2. sharpen pencils to conical point and knife edge. 3. draw border, horizontal and vertical lines 4. place and draw the title block. 5. write freehand legible letters and numerals.
Freehand Sketching	Students should be able to make neat freehand sketches of lines, curves and irregular shapes.	Basic freehand techniques of drawing lines, curves, circles, and irregular shapes.	1. Demonstrates correct techniques of freehand sketching. 2. Assigns freehand drawing tools. 3. Assists students when necessary during exercises.	1. Watch teacher's demonstration. 2. Practice freehand sketching.	HB pencil, drawing sheet, sharpener, eraser board and tee-square.	Student to: draw thin, thick lines, curves, circles and irregular shapes.

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SUB-THEME: TOOLS, MACHINES AND PROCESSES

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Woodwork Hand Tools	Students should be able to: 1. identify woodwork: - Measuring tools - Setting and marking out tools - Driving tools - Boring tools - work holding devices - Cutting and paring tools. 2. describe the woodwork hand tools; 3. use and sketch the hand tools; 5. care and maintain woodwork hand tools.	1. Measuring tools. 2. Setting and marking out tools. 3. Driving tools e.g.hammer, mallet and screw driver, etc. 4. Boring tools e.g. wood brace, ratchet brace and bradawl, etc. 5. Holding devices:. 6. Cutting and paring tools. 7. Care and Maintenance of Woodwork Hand Tools.	1. Displays wood work hand tools 2. Demonstrates the use of the various hand tools 3. Guides class discussion of the functions of the tools. 4. Supervises the students as they make sketches of the hand tools. 5. Explains how to care for the hand tools.	1. Identify woodwork hand tools. 2. Watch teacher demonstrations 3. Participate in class discussions. 4. Sketch the hand tools. 5. Use the hand tools for woodwork. 6. Clean and store the hand tools.	1. Steel Rule 2. Hammer 3. Mallet 4. G- Cramp 5. Sash Cramp 6. Screw Drivers 7. Braces 8. Tenon saw etc.	Students to: 1. name 3 of the woodwork hand tools; 2. describe the functions of the hand tools; 3. draw and label the hand tools; 4. use the hand tools for woodwork; 5. explain how to care for woodwork hand tools.
Metal Work Hand Tools	Students should be able to: 1. identify the different hand tools used for metalwork; 2. describe the hand tools; 3. draw sketches of the different hand tools; and 4. use the hand tools in metal work; 5. care and maintain metal work hand tools.	1. Marking out tools: surface plate, scribe, odd-leg calipers, etc. 2. Measuring tools and gauges: steel rule, protractors, etc. 3. Driving tools: punches, screw drivers, spanners, etc. 4. Cutting tools: chisels, files, etc. 5. Care and maintenance of Metal work tools.	1. Displays metalwork hand tools 2. Demonstrates the use of the various hand tools 3. Guides class discussion of the functions of the tools. 4. Supervises the students as they make sketches of the hand tools. 5. Explains how to care for the hand tools.	1. Identify metalwork hand tools. 2. Watch teacher demonstrations 3. Participate in class discussions. 4. Use and Sketch the hand tools. 6. Clean and store the hand tools.	1. Marking out tools, table, measuring tools, driving tools, and cutting tools. 2. Models of shaped blocks.	Students to: 1. name 3 of the metalwork hand tools; 2. describe the functions of the hand tools; 3. draw and label the hand tools; 4. use the hand tools for metalwork; 5.explain how to care for metalwork hand tools.

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Maintenance of Tools and Machines	Students should be able to: 1. explain the meaning of maintenance; 2. identify different types of maintenance practices; 3. explain why tools and machines need regular maintenance; 4. maintain and care for workshop tools and machines.	1. Meaning of Maintenance 2. Types of maintenance Practices: - preventive, - corrective - predictive. 3. Importance of maintenance.	1. Guides class discussion on meaning and types of maintenance practices. 2. Demonstrates different methods of caring and maintaining workshop tools and machines. 3. Explains the need and importance of regular maintenance of tools and machines.	1. Participate in class discussions. 2. Watch teacher demonstrations. 3. Undertake simple maintenance of tools and machines e.g. regular cleaning, oiling and greasing of simple machines and tools.	• Grease, engine oil, louver frame, • tools and machine parts, • cotton, rag, • cleaning materials e.g. detergent, rag, brush, liquid soap, etc.	Students to: 1. explain the importance of maintenance. 2. describe the three types of maintenance practices;. 3. list at least five suitable cleaning materials for tools and machines; 4. state the importance of maintenance 5. clean and maintain tools and machines in the school workshop.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 1

SUB-THEME: BASIC HUMAN MOVEMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
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Physical Fitness and Body Conditioning Programme	Students should be able to: 1. explain the meaning of physical fitness 2. list the components of physical fitness and differentiate between health and performance related components. 3. mention the characteristics of a physically fit person. 4. list appropriate exercises to develop the different components of physical fitness. 5. demonstrate exercises to develop. - Strength, - Endurance, - flexibility. 6. State safety precautions.	1. Meaning of physical fitness 2. Components of physical fitness - health related components - performance related components 3. Characteristics of physically fit person 4. Importance of physical fitness 5. Exercises to develop strength endurance and flexibility 6. Safety precautions while performing exercises	1 Explains the meaning of physical fitness. 2. Discusses the components of physical fitness under health and performance related components. 3. Guides pupils to discuss the characteristics of a physically fit person. 4. Explains the importance of physical fitness 5. Explains and demonstrates some exercises that help in developing strength, endurance and flexibility. 6. Describes the warning signs while performing exercise	- Listen to teacher's explanation. 2. List the components of physical fitness differentiating between the health and performance related components. 3. Discuss the characteristics of a physically fit person. 4. Practice teachers demonstrations of some exercises that help in developing strength, endurance, agility and flexibility. 5. Describe the precaution while performing exercise	1 Posters 2. Charts 3. Pictures 4. Textbook 5. Video Clips.	Students to: 1. Define physical fitness. 2. List four components of physical fitness 3. Mention three characteristics of a physically fit person. 4. Mention two importance of physical fitness. 5. Demonstrates at least three of the exercises 6. List four safety precautions while performing the exercises 7 give one word to describe the ability to change direction easily

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THEME: PHYSICAL AND HEALTH EDUCATION
SUB-THEME: BASIC HUMAN MOVEMENT

JSS 1

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Recreation, Leisure and Dance Activities	Students should be able to: 1. define recreation, leisure and dance; 2. differentiate between recreation, leisure and dance; 3. list some benefits derived from recreational and dance activities	1. Meaning of recreation, leisure and dance. 2. Differences between dance, leisure and recreation 3. Benefits of recreation and dance: - refreshment of both body and mind - create room for fun and enjoyment. - carry over values of skills learnt in physical education classes. - promotion of mental alertness, social and emotional stability.	1. Explains the meaning of recreation, leisure and dance. 2. Guides the students to identify the various components of recreation and dance. 3. Explains types of activities under the two components of recreation and dance. 4. Demonstrates some local dancing steps 5. Invite a traditional dancer to demonstrate some dancing skills 6. Outlines the benefits of recreational activities and dance	1. Pay attention while the teacher defines recreation leisure and dance. . Mention the components of recreation and dance. 3. List types of recreational activities and traditional dances 4. Practice some local dancing steps 5. List some benefits of recreational activities and dance 6. Take a trip to a nearby park, stadium, swimming pool. 7. Dancing competitions.	1. Posters 2. Photographs 3. Films 4. Video Tapes 5. Parks 6. Swimming pools 7. Zoological gardens 8. Stadium 9. Ludo, draught, scrabble and novels 10. Music	Students to: 1. define recreation, leisure and dance 2. mention the components of recreation, leisure and dance. 3. differentiate between leisure and recreation. 4. list three benefits of recreational activities and dance.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION
SUB-THEME: SPORTS AND GAMES

JSS 1

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Athletics (Track and Field)	Students should be able to: 1. define athletics 2. describe the basic skills in discus and shot put 3 perform the basic skills in discus and shot put 4. draw and label the sectors with dimensions 5. Take part in warm-up activities 6. list safety measures in shot-put and discus 7. explain the benefits of taking part in athletics.	1. Basic skills and techniques in the following Field events: (a) Shot put, (b) Discus 2. Execution of basic skills and techniques in: a. Discuss - Carriage - Stance - Throw - Follow through b. Shot put: - Grip - Stance - Put - Follow through 3. List the rules governing discus and shot put 4. List safety measures.	1. Explains the basic skills and techniques in shot put, discus 2. Demonstrates the basic skills. 3. Mentions various rules and regulation governing the execution of shot put and discus. 4. Take students to the field to see shot put and discus sector. 5. Lists safety measures in discus and shot put 6. Write notes for students.	1. Listen to the teacher and take part in the discussions. 2, List basic skills in shot put & discuss 3. Watch teachers demonstrations of the various skills. 4. Warm up 5. Practice the various basic skills.. 7. Apply safety measure. 8. Wash their hand, face and feet.	1. Field and measuring instrument 2. shot put and discus 3. Video clips 4. Pictures 5. Charts 6. Textbooks	Students to: 1. define Athletics; 2.list and describe the basic skills in a shot put and discus; 3.draw the sectors with dimensions 4.take part in warm up activities 5.demonstrate the basic skills in shot put and discus 6. list 3 safety measures in athletics. 7. list 5 benefits in athletics.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION
SUB-THEME: SPORTS AND GAMES

JSS 1

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Ball games - Soccer - Volleyball	Students should be able to: 1. narrate the history and development of volley ball and soccer; 2. describe volleyball and soccer; 3. demonstrate the techniques and skills involved in playing the games; 4. apply the rules and regulations governing the games; 5 List the officials of the games and their functions; 6. List the facilities/equipment use during the games and their dimensions; 7. List the safety measures in soccer and volleyball.	1. Basic skills and techniques in Volleyball and Soccer. 3. Application of the rules and regulations governing soccer and volleyball. 4. Officials of soccer and volleyball and their functions. 5. Facilities and Equipment. 6. Values of volleyball and soccer. 7. Common injuries in volleyball and soccer.	1 . Describe volleyball and soccer: 2. Demonstrate the techniques and skills involved in playing the games. 3. Explains the various rules and regulations governing the games. 4. Take students to the fields. 4. Draws and labels the court/pitch with their dimensions. 5. list the common injuries associated with ball games 6. explain the procedures for carrying out first aid treatment	1. Tell the history and development of: - Volleyball - Soccer 2. Watch teacher's demonstration of the various skills 3. Warm-up 4. Practice the skills. 5. Apply the various skills and techniques to games situation (class inter-group competitions) 6. Draw and label the court/pitch. 7. Listen to the explanation.	1. Playing courts and pitches. 2. Balls 3. Charts 4. Film shows 5 Textbooks 6. Whistles	Students to: 1.describe Volley ball and Soccer 2. demonstrate skills involved in playing: a) Soccer and b) Volley ball. 3. list three values of team ball games. 4. mention common injuries in ball games. 5. list three essential officials of each game and their duties.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION
SUB-THEME: SPORTS AND GAMES

JSS 1

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Contact and Non-Contact Sports	Students should be able to: - differentiate contact and non-contact sports; - list examples of contacts and non-contacts sports; - list the benefits of taking parts in contact and non-contact sports; - demonstrate the common skills in contacts and non-contact sports; - list safety measures in contact and non-contact sports.	- definition of contact and non-contact sports. - examples of contact sports - Wrestling - judo - Examples of non-contact sports: - Gymnastic - Swimming - Benefits of contact and non-contact sports. - Basic skills and techniques in contact and non-contact sports. - Safety measures in contact and non-contact sports.	- defines contact and non-contacts sports. - List examples of contacts and non-contacts sports.. - Demonstrates the various skills involved in the contacts and non-contacts sports. - Enumerates the benefits derived in contacts and non-contacts sports.. - Demonstrate the common skills in contacts and non-contact sports - List safety measures in contact and non-contact sports.	- Defines contact and non-contacts sports. - Watch teachers demonstration. - Practice the skills. - Enumerates the benefits derived from contacts and non-contacts sports. - List safety measures in contacts and non-contact sport.	- Playground/ gymnasium - Costumes - Gymnastic mats - Protective gears - Wrestling mats - Swimming pool/stream - Light jackets - Film shows. - Musical instruments - Photographs - Charts/Posters. - Textbooks.	Students to: - Differentiate between contact and non-contact sports; - List 2 examples each of contact and non-contact sports; - List three benefits of taking part in contact and non-contact sports; - demonstrate the common skills in contacts and non-contact sports; - list three safety measures in contact and non-contact sports.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

SUB-THEME: HEALTH EDUCATION

JSS 1

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Personal, school and community health.	Students should be able to: 1. list and explain the three determinants of health; 2. list four characteristics of a healthy person; 3. explain the meaning of sewage and refuse; 4. list five methods of sewage disposal; 5. list three methods of refuse disposal; 6. list sources of water supply.	1. Determinants of health (Hereditary, Environment, Life style) 2. Characteristics of a healthy person. 3. Meaning of Sewage and refuse. 4. Methods of sewage disposal. 5. Methods of refuse disposal. 6 Sources of water supply.	1. Presents and discusses pictures of healthy and unhealthy life styles and environment. 2. Explains how hereditary, environment and life styles affect health. 3. Guides students to identify characteristics of a healthy person. 4. Explains the meaning of sewage and refuse. 7. State the qualities of safe water. 8. Guide the students to discuss methods of sewage and refuse disposal. 9. Illustrates with posters and explain different sources of water supply. 10. Explains and demonstrates the qualities of safe water	1. Listen attentively to teachers explanation. 2. Give examples of healthy and unhealthy persons. 3. Write down the characteristics of a healthy person. 4. Give examples of healthy and unhealthy environment. 5. Describe hereditary traits. 6. Explain ways of disposing sewage and refuse in their homes. 7. Excursion to dump sites and recycle centers.	1. Photographs 2. Posters/ Charts 3. Communication Materials 5. Textbooks 6. Waste paper baskets/ Refuse bins 7. Brooms and rakes.	Students to: 1. list and explain three determinants of health; 2 list four characteristics of a healthy person; 3 explain meaning of sewage and refuse 4. list any three methods of sewage disposal. 5. list any five methods of refuse disposal. 6. list five sources of water supply 7. list three qualities of safe water.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION
SUB-THEME: HEALTH EDUCATION

JSS I

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Food, Nutrition and Health	Students should be able to: 1. explain the meaning of food and nutrition; 2. list the different types of food; 3. classify food based on nutrients; 4. list the importance each food nutrients; 5. state the importance of food.	1. Meaning of food 2. Different types of food 3. Classes and importance of food nutrients: - carbohydrate - protein - fats and oil - minerals and salts - vitamins - water. 4. Importance of food: - Eliminate Hunger - Provide Energy for various physical activities, - for healthy living, etc.	1. Explains the meaning of food and nutrition. 2. Displays samples of various types of food. 3. Leads students to classify food into groups 4. Explains the importance of each class of food to students 5. List types of food for athletes during: - training period - competition period - off competition period	1. Mention examples of local food and bring them to class. 2. Observe the displayed food items. 3. Group food into different classes. 4. Listen to teacher's explanation. 5. List types of food beneficial to athletes during training, competition and off competition periods.	1. Different food items 2. Pictures, Charts 3. Textbooks.	Students to: 1. define food. 2. mention the six classes of food. 3. give one example each of the six classes of food. 4. state any five importance of food.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION
SUB-THEME: HEALTH EDUCATION

JSS 1

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Pathogens, Diseases and their prevention	Students should be able to: 1 identify the diseases caused by pathogens; 2. list different types of disease; 3. mention the effect of diseases on athletes performance in physical activities; 4. list types of preventive measures.	1. Diseases caused by Pathogens. 2. Disease preventive measures: - adequate nutrition and exercises - clean environment - use of safe water - proper disposal of refuse and sewage - seeking and getting treatment in time - Good hygiene - immunization - good ventilation - health education - vaccination	1. Leads students to discuss how diseases are caused by pathogens. 2. list different types of diseases. 3. explains effects of disease on students well being. 4. Explains how to prevent diseases. 5 Lists types of preventive measures 6. Asks students questions on prevention of diseases.	1. Listen to teachers explanation 2. Participate in class discussion and group work. 3. Give examples of diseases caused by pathogens 4. Enumerate the effect of diseases on their health. 5. List types of preventive measures	1. Posters 2. Charts 3. Pictures 4. IEC materials 5. Textbooks	Students to: 1. list three disease caused by pathogens; 2. list five communicable diseases. 3. mention four effects of diseases on athletes performance in physical activities; 4. list five preventive measures of communicable diseases.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 1

SUB-THEME: BASIC COMPUTER OPERATIONS AND CONCEPTS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Historical Development of Computers	Students should be able to: - list early counting devices; - state the problems in counting large numbers with those devices; - name mechanical counting and calculating devices; - name electro-mechanical counting devices; - compare electronic counting devices with modern computer; - state the contributions of named IT inventors; - identify the five generations of computers; - describe the features of each generation.	- Early counting devices (fingers, stones, sticks, pebbles, cowries, etc. - Mechanical counting and calculating devices: Abacus, Slide rule etc. - Electro-mechanical counting devices: - John Napier bone - Blaise Pascal machine - Gottfried Leibniz machine - Joseph Jacquard loom - Charles Babbage analytical machine - Philip Emeagwali - Electronic counting devices and modern computer: - Herman Hollerith punch cards - John Von Neumann machine - Modern machines. - Generations of computers: - First - Second - Third - Fourth - Fifth	- Describes and shows different early counting devices. - Mentions the problems of counting large numbers with those early devices. - Demonstrates the use of counting and calculating devices. - Guides students to compare and contrast the electronic with modern computer. Discusses the contributions of the various counting devices to the modern computer. - Describes each generation of computers	- Observe and examine the counting devices. - Count given large numbers with the devices. - Observe the use of mechanical counting and calculating devices. - Observe and recognize the Pictures of electro-mechanical devices - Observe and recognize electronic counting devices and modern computer. - Match each generation with its characteristic features.	- Fingers, - Toes, - Sticks, - Stones, - Pebbles etc. - Abacus - Slide rule - Four Figure Table - Charts - Pictures - Computer - Cardboard cuttings	Students to: - name at least four early counting devices. - discuss the problems in using those devices. - name two mechanical counting and calculating devices; - name two electro-mechanical counting devices; - mention the contributions of at least two named IT inventors; the contributions of a named inventor; - state contributions of a named inventor; - name the generations of computers; - state two features of each generation of computers.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 1

SUB-THEME: BASIC COMPUTER OPERATIONS AND CONCEPTS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Data Processing	Student should be able to: 1. define data processing; 2. state the stages of data processing; 3. describe what each stage entails; 4. state the features of a computer that make it an excellent tool for data processing.	1. Definition 2. Data processing cycle: i. Data Gathering ii. Data Collation iii. Input stage iv. Processing stage v. Storage Stage vi. Output stage 3. 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. 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. Guides students to identify the benefits of the computer as a data processing tool. 5. 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; 4. state four features that make computer useful for data processing.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 1

SUB-THEME: BASIC COPUTER OPERATIONS AND CONCEPTS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
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 excursion to suitable computer laboratory. 2. Guides students to identify ways of taking good care of a computer room/ laboratory. 3. 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

THEME: INFORMATION TECHNOLOGY

JSS 1

SUB-THEME: BASIC KNOWLEDGE OF INFORMATION TECHNOLOGY (IT)

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Applications of IT in Everyday Life	Students should be able to: 1. state the uses of IT in daily activities; 2. identify the impact of IT in daily activities.	1. Uses of IT: i. communication. ii. timing and control iii. information processing/management 2. IT and Society.	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; - identify ways IT has improved their daily living. 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 2. Documentary films 3. Multimedia presentations.	Students to: 1. state three everyday life uses of IT. 2. list three ways IT has assisted the societal development.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 1

SUB-THEME: BASIC KNOWLEDGE OF INFORMATION TECHNOLOGY (IT)

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Information Transmission	Students should be able to: 1. define information transmission 2. list ancient methods of transmitting information; 3. identify modern 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 3. Modern methods of transmitting information: - Prints - Telephone - Telex - Radio - Television - Fax - Satellite - Internet - GSM	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 ancient and 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.	1. Charts, drums, whistles or Pictures depicting ancient modes of information transmission 2. GSM, Radio, Television, Computer, etc. or Pictures / Charts of these objects. 3. Letters, Magazines, Newspapers,	Students to: 1. define information transmission; 2. list three ancient methods of transmitting information; 3. state five modern methods of transmitting information; 4. list two means of transmitting information

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC SCIENCE

JSS 2

SUB-THEME: LEARNING ABOUT OUR ENVIRONMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Living Things	Students should be able to: 1. mention the different habitats of living things and identify the organisms found in them; 2. state various adaptive features of living things in their habitat. 3. identify characteristics of organisms in the same habitat and what they have in common; 4. identify intelligence as a unique characteristic of human beings; 5. Apply basic intelligence skills e.g. observation, measurement of time and weight inference. 6. identify major indices of growth changes in living things 7. explain the stages in the development of humans;	1.Habitat and examples. 2.Adaptations of living things to their habitat. 3.Relationships between organisms in the same habitat. 4.Uniqueness of human beings: - reasoning - problem solving. - Inquisitiveness, - observation, -measurement inference. 5. Measurement of Growth and Developmental Changes a. Growth changes in: - height - weight - size	1. Takes students to visit different habitats. 2. Guides students to: - identify living organisms in the different habitats. - identify the special features (adaptations) of the organisms found in the different habitats 3.Guides and directs class discussion 4. Leads discussion on the importance of the brain, human reasoning and intelligence. 5. Guides students discussion on: the use of intelligence for survival and manipulating the environment. 6. Using appropriate instruments, guides students to take measurement of - length - time, - weight.	1.Visit the various habitats and observe the living things in them. 2. Participate in class discussion. 1. Classify living things based on where they live. 2. Collect and preserve some living organisms. 3. Participate in discussion. 4. Follow teacher's instruction to carry out listed measurements.	1. Charts 2. Diagrams 3. School garden 4. Video clips 5. Plastics/mental containers 7. Preservatives e.g. formalin 8. Film on human exploits 9. Pictures 10. Model 11. Chart 12. Metre rule 13. Clock 14. Weighing scale	Students to: 1. name three major habitats; 2. give examples of living things found in the different habitats; 3. state three differences between - plant found on land and water - animals that live on land and water; 4. explain why man is unique among living things; 5. demonstrate Intelligence skills-how many teaspoon full of water can fill up a bottle of coke.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC SCIENCE

JSS 2

SUB-THEME: LEARNING ABOUT OUR ENVIRONMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
	8. identify the characteristic features of the different developmental stages 9. classify developmental changes as temporary and permanent.	b. Developmental changes: - infancy - adolescents - adulthood c. Characteristic features of stages of development. d. Classifying growth and developmental changes as temporary/permanent.	7. Guides students to group themselves according to different heights, weights and sizes 8. Leads class discussion on the differences between: - infants and adolescents; - adolescents and adults.	6. Under teacher's instruction, group selected students according to height, weight and size; 7. Compare: themselves with their younger siblings. 8. Write short notes on their observation	15. Spring balance 16. Measuring cylinder 17. Poster showing: - babies - students - teachers and parents	6. State three major indices of growth changes in living things. 7. list three examples of developmental changes in infants, adolescents and adults. 8. state the characteristics of growth and developmental changes; 9. classify changes in living things as: - growth and - developmental changes; - temporary and permanent changes.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC SCIENCE

JSS 2

SUB-THEME: LEARNING ABOUT OUR ENVIRONMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Chemicals	Students should be able to: 1. define chemicals; 2. classify chemicals based on their intended use and hazardous nature; 3. state safety measures when using chemicals.	1. Meaning of chemicals 2. Classes of chemicals: (a) based on use: - pharmaceutical/ cosmetics - nuclear - agrochemical - industrial - laboratory (b) based on hazardous nature: - highly hazardous and toxic - moderately hazardous and toxic - non-hazardous and non-toxic 3. Safety measures when using chemicals: - adhere to the manufacturer's safety instructions - follow safety guidelines for chemical storage and handling - observe and adhere to safety signs and instructions on chemical packages - ensure proper labeling and storage of chemical	1. Displays samples of chemicals in class. 2. Leads students in class discussion. 3. Guides students to identify hazardous and non-hazardous chemicals. 4. Demonstrates the use of some safety devices when handling chemicals. 5. Display relevant chart on safety signs placed on chemicals.	1. Observe some displayed chemicals. 2. Participate in class discussion. 3. Observe and recognize the classes of chemicals displayed. 4. Identify safety signs in chart and storage containers displayed. 5. Match chemicals with appropriate storage containers.	1. Chemical bottles (labeled). 2. Chemical bottles (non-labeled). 3. Samples of chemicals: - Kerosene, - insecticides, - camphor - engine oil in well labeled and appropriate containers. 4. Charts showing classification of chemicals and their examples 5. Charts showing safety signs.	Students to: 1. define chemicals; 2. State two classes of chemicals; 4. list 3 examples of each of the classes of chemicals; 4. mention 3 safety measures in the use of chemicals.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC SCIENCE

JSS 2

SUB THEME: YOU AND ENERGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Work, Energy and Power	Students should be able to: 1. explain the meaning of work, energy and power; 2. explain the meanings of potential energy and kinetic energy; 3. apply the formula $\text{power} = \frac{\text{Work done}}{\text{Time}}$ 4. identify energy transfers that occur when work is done	1. Meaning of work, energy and power. 2. Meaning of potential and kinetic energy. 3. Calculations involving Work done. 4. Energy transfer when work is done.	1. Guides students to illustrate the concept of work and the relationship between work, energy and power. 2. Leads students on the discussion to illustrate potentials and kinetic energy. 3. Leads the students to solve some examples. 4. Initiates and leads discussion to show that energy transfers occur when work is done	1. Measure height to determine work done by a falling object. 2. Use materials e.g. ball, a stone for activity on the potential kinetic energy. 3. Study and practice solving similar problem. 4. Participate in discussion and record the main ideas.	1. Objects like metre rule ball, stones, books. 3. Wound clock 4. Toy car 5. Bicycle.	Students to: 1. define work, energy and power; 2. explain the meanings of potential and kinetic energy; 3. solve some problems on the concepts of power and work; 4. identify energy transfers that occur when work is done with specific examples.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC SCIENCE

JSS 2

SUB THEME: YOU AND ENERGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Types of Energy	Students should be able to: 1. state the assumptions of the kinetic theory; 2. explain the molecular structure of solids, liquids and gases using the kinetic theory; 3. distinguish between boiling and evaporation using the kinetic theory; 4. state the factors that affect evaporation.	1. Kinetic Energy: Assumptions. 2. Explanation of some phenomena using kinetic theory. 3. Explanation of boiling and evaporation using kinetic theory. 4. Factors that affect evaporation.	1. Directs discussion on the statements of the kinetic theory. 2. Provides charts of molecular structure: solids, liquids and gases and lead the discussion. 3. Guides students to carry out activity on boiling and evaporation and discuss findings. 4. Guides students to deduce some factors that affect evaporation.	1. Participate in the discussion and note the major explanations. 2. Participate in the discussion and discover molecular spacing as major difference between solids, liquids and gases. 3. Use water and ether respectively for activities on evaporation and boiling and participate in discussing their results. 4. Deduce the factors that affect evaporation from their observation.	1. Charts to guide group discussion. 2. Charts of molecular structure of solids, Liquids and gases. 3. Beaker(2) 4. Water 5. Ether 6. Capillary tube 7. Source of heat.	Students to: 1. state three assumptions of kinetic theory; 2. use the kinetic theory to explain why a solid has a definite shape and a liquid has none; 3. state the difference between boiling and evaporation; 4. state two factors that affect evaporation.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC SCIENCE

JSS 2

SUB THEME: YOU AND ENERGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Thermal Energy	Students should be able to: 1. illustrate that when two bodies are in contact, heat flows from the hot to the cold one; 2. name the methods of heat transfer; 3. describe heat conduction and its applications; 4. describe heat convection and state two of its applications; 5. explain heat radiation and state two of its applications.	1. Heat flow 2. Heat Transfer (conduction, convection and radiation)	1. Guides students to illustrate thermal energy with an activity. 2. Guides the illustration of Heat transfer. 3. Guides students in activity on heat conduction and discuss the uses with them. 4. Guides students in activity on convection and discuss its application. 5. Guides students to carry out activity for radiation and discuss its applications.	1. Heat one end of iron rod while holding the other. The palm gets warm with time. 2. Discover that heat is transferred by conduction, convection and radiation. 3. Dip one end of metal spoon in hot water and state their observations. 4. Boil water and observe the convection currents, note the applications as discussed. 5. Measure temperature differences between two cans, one painted black and the other not painted, that are equidistant from a source of heat.	1. Source of heat – Iron rod 2. Beaker 3. Metal spoon 4. Water 5. Hot water 6. Two cans – one painted black 7. Two thermometers	Students to: 1.show that heat flows from a hot body to a cold one when in contact; 2.name two methods of heat transfer; 3.explain heat conduction and state two uses; 4.describe convection and list two of its applications. 5.explain what heat radiation is and give one application of radiation.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC SCIENCE

JSS 2

SUB-THEME: SCIENCE AND DEVELOPMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Crude oil and Petrochemicals	Students should be able to: 1. explain what crude oil and petrochemicals are; 2. describe the process of refining crude oil; 3. state the uses of crude oil and petrochemicals; 4. state the importance of crude oil to Nigeria.	1. Meaning of Crude oil, Petrochemicals. 2. Refining of Crude oil. 3. Uses of crude oil and petrochemicals. 4. Importance of crude oil and petrochemicals.	1. Leads class discussion on the meaning of crude oil and petrochemicals; methods of refining crude oil; uses and importance of crude oil. 2. Leads a visit to fuel station to see the different petroleum products.	1. Participate in class discussion. 2. Participate in the visit and record their observations. 3. Find out from home various uses of petroleum products.	1. Crude oil 2. Engine oil 3. Grease 4. Petrol 5. Kerosene	Students to: 1. explain the meaning of crude oil and petrochemicals; 2. describe the process of refining crude oil; 3. list 3 uses of petrochemicals; 4. mention the importance of crude oil to Nigeria.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 2

SUB-THEME: SAFETY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
First Aid	Students should be able to: 1. explain the meaning of First Aid; 2. identify the contents of a First Aid box; 3. apply first aid measures; 4. discuss the ABC of First Aid; 5. apply the ABC of First aid to: - victims of common workshop accidents; - road accident victims.	1. First Aid: meaning and materials. 2. Application of simple first aid. 3. ABC of First Aid: -Airways -Bleeding and breaks Circulation (Pulses). 4. Application of ABC of First Aids.	1. Exhibits and explains first aid materials and their uses. 2. Demonstrates how to give simple First Aid. 3. Explains ABC of First Aid. 4. Shows posters of application of ABC of First Aid.	1. Inspect first aid box and name the content. 2. Practice giving simple First Aid. 3. Observe the demonstration and posters of ABC applications.	1. First Aid box and materials. 2. Posters of ABC application. 3. Video clips	Students to: 1. define First Aid; 2. list five First Aid materials; 3. apply simple First Aid measures; 4. explain ABC application of First Aid; 5. demonstrate three applications of ABC of First Aid.
Rescue Operations	Students should be able to: 1. explain the meaning of rescue operation; 2. identify different aspects of rescue operation; 3. describe the steps involved in each aspect of rescue operation.	1. Meaning of rescue operation. 2. Different aspect of rescue operation namely 3. Securing the environment; vehicle and victims(s) 4. Steps involved in rescue operation.	1. Explains the meaning of rescue operation. 2. Using pictures of rescue scenes, leads students to: - identify different aspects of rescue operation; and - describe the steps involved in each aspect of rescue operation.	1. Examine pictures of rescue scenes. 2. Write down different aspects of rescue operation and steps involved.	1. Caution Triangle. 2. Fire extinguisher 3. Pictures or and Video clips.	Students to: 1. define rescue operation; 2. state three aspects of rescue operation; 3. mention three steps involved in rescue operation.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 2

SUB-THEME: MATERIALS AND PROCESSING

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Materials and their common uses	Students should be able to: 1. state some common uses of wood,; 2. explain specific uses of ferrous and non-ferrous metals and their alloys. 3. state some common uses of ceramics and glass. 4. state the uses of plastics.	1. Wood: furniture, building construction, handles of implements, etc. 2. Metals: household, utensils, vehicle and ship parts, etc. 3. Brass: decorations, ammunitions, etc. 4. Bronze: carving, statues and ornaments, etc. 5. Ceramics: tiles, household utensils, etc. 6. Rubber: tyres and tubes, foot wears, etc. 7. Plastics: plastic buckets and bottles, etc.	1. Displays ceramic and rubber products, etc. 2. Leads students to identify materials. 3. Guides students Discussion of the various uses of materials (wood, metal, plastics, rubber, ceramics, etc.) in everyday life. 4. Plans students visits to work places: Furniture workshop, Ceramic industry, and Black smiths workshop.	1. Examine articles made of wood, metals, ceramic plastics and rubber, etc. 2. Visit furniture workshops. 3. Visit factories and building sites and observe the uses of metals and alloys. 4. Watch a documentary on the production and uses of metals and alloys. 5. Observe and touch ceramics and glass wares. 6. Inspect specimens of rubber and plastic products.	1. Articles made of wood. 2. Articles made of metals and metal alloys, 3. Articles made of ceramics and glass, 4. Articles made of rubber, 5. Plastic products in school and homes.	Students to: 1. list five uses of wood; 2. name five items made of metals and metal alloys; 3. list three uses of ceramics and glass; 4. name three items made of rubber and plastics.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 2

SUB-THEME: DRAWING PRACTICE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
Geometric Construction	Students should be able to: 1. define, identify, draw and list parts of a circle. 2. use appropriate instruments to divide a circle into equal parts 3. use appropriate instruments to draw a tangent and normal to a given circle and two equal circles.	1. Circles: - Parts of a Circle (diameter, radius, chord, sector, quadrant circumference, etc.) - Circle Drawing Use of set squares, tee square and compasses to divide a circle into 4,,8, and 12 equal parts. - Construction of tangent and normal to a circle; tangent at a point o the circle; tangent from a point outside the circle and to one or two equal circles.	1. Names, defines, describes, and draws the parts of a circle. 2. Demonstrates the use of a pair of compasses, set square and tee square to divide a circle into 4, 8 and 12 equal parts. 3. Demonstrates the construction of tangent and normal to a circle.	1. Watch teacher's demonstrations. 2. Practice the use of tee square, set squares and compasses to divide circles into equal parts. 3. Construct a tangent and normal to a given circle.	Drawing instruments and materials.	Students to: 1. define, identify and describe types of circles. 2. describe and construct a tangent and a normal to a circle. 3. use appropriate instruments to divide a circle into a number of equal parts.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 2

SUB-THEME: DRAWING PRACTICE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
	Students should be able to: 1. define, identify and construct various triangles. 2. construct inscribed and circumscribed circles to given triangles.	2. Triangles: - Right angled, equilateral, isosceles and scalene triangles. - Inscribed and circumscribed circles to given triangles.	1. Defines and demonstrate the construction of right angled, triangle, equilateral triangle. 2. Inscribes and circumscribes circles to triangles.	1. Construct triangles 2. Inscribe and circumscribe circles to triangles.	Drawing instruments and materials.	1. identify and circumscribe circles to a given triangle. 2. Construct inscribed and circumscribed circles to given triangles.
	Students should be able to define, identify and construct regular and irregular polygons.	3. Polygons: - Definition and construction of regular and irregular polygons: pentagon, hexagon, heptagon, octagon, using general and specific methods, etc.	Names and describes various types of polygon.	1. Listen attentively and Watch teacher's demonstrations 2. Construct polygons.	1. Drawing instruments and materials. 2. Models of polygons.	Student to construct and describe regular and irregular polygons.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 2

SUB-THEME: DRAWING PRACTICE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
Plane Figures	Students should be able to: 1. identify regular plane figures; 2. construct regular plane figures of equal areas. 3. find the area of regular plane figures; 4. enlarge and reduce plane figures.	1. Examples of Plane Figures 2. Construction of Plane Figures 3. Determination of Areas of Regular Plane Figures, e.g. - triangle and rectangle of equal areas. - square and rectangle of equal areas, etc. 4. Enlargement and reduction of plane figures: triangles, rectangles and squares in given ratios by (a) length of sides, and (b) radial line method.	1. Shows students pictures of regular plane figures. 2. Demonstrate the construction of triangles and rectangles of equal areas, squares and rectangles of equal areas. 3. Guides students to determine the area of regular plane figures. 4. Demonstrates general and specific methods of enlarging and reducing plane figures..	1. Examine some plane shapes and figures. 2. Construct triangles, rectangles and squares of equal areas. 3. Determine the areas of regular plane figures. 4. Enlarge and reduce plane figures	Drawing instruments and materials.	Students to: 1. name at least three regular plane figures; 2. construct regular plane figures of equal areas. 3. find the area of regular plane figures; 4. enlarge and reduce plane figures.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 2

SUB - THEME: TOOLS, MACHINES AND PROCESSES

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
Woodwork Machines	Students should be able to: 1. identify the various types of woodwork machines; 2. state the uses of the machines; 3. carry out simple operations (cutting and boring) with the machines.	1.Types and Uses: (a) Portable power tools: belt sander, hand drill, fret saw, etc. (b) Machines: circular saw, band saw, wood lathe, surface planer, thickness, sanders, drill, etc. 2.Functions of the different types of machines. 3. Care and maintenance of woodwork machines.	1. Takes students to woodwork workshop. 2. Guides the students to identify various woodwork machine and their uses. 3. Demonstrates the use and care of machines e.g. portable power tools: belt sander, fret saw, hand drill etc. 4. Supervises the students as they use the different machines for woodwork.	1. Visit woodwork workshops. 2. Identify metalwork machines. 2. Practice cutting and drilling to produce simple projects. 3. Care for machines in woodwork workshop.	1. Various woodwork machines e.g. portable power tools: belt sander, fret saw, hand drill etc. 2. Workshop overalls.	Students to: 1. mention at least three types of woodwork machines; 2. describe the uses of the machines; 3. use the woodwork machines to cut and bore wood;
Metalwork Machines	Students should be able to: 1. identify the various types of metal work machines; 2. state the uses of the machines; 3. carry out simple operations (cutting and drilling) with the machines.	1. Types of metalwork machines. 2. Functions of the different types of machines. 3. Care and maintenance of metalwork machines.	1. Takes students to metalwork workshops. 2. Guides the students to identify metalwork machine and their uses. 3. Demonstrates the use and care of metalwork machines e.g. power tools: centre lathe, power hacksaw, pedestal drilling machine etc. 4. Supervises the students as they use the different metalwork machines.	1. Visit metalwork workshops. 2. Identify metalwork machines. 2. Practice cutting and drilling to produce simple projects. 3. Care for machines in metalwork workshop.	1. Various machines: centre lathe, power hacksaw, pedestal drilling, etc. 2. Charts showing milling machine, shaping machine, grinding machine, etc. 3. Metalwork workshop overalls.	Students to: 1. mention at least three types of metalwork machine; 2. describe the uses of the machines; 3. use the machines to cut and drill metals.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 2

SUB - THEME: TOOLS, MACHINES AND PROCESSES

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
Belt and Chain Drives	Student should be able to: 1. describe belt and chain drives; 2. explain the principles of belt and chain drives; 3. state the advantages and disadvantages of belt and chain drives.	1. Examples of Belt and Chain drives. 2. Applications of Belt and Chain drives. 3. Advantages and disadvantages.	1. Shows pictures of various types of belt and chain drives. 2. Takes students to visit factories and workshops where belt and chain drives are used. 3. Explains the principles behind the operations of the drives. 3. Moderates class discussion of the advantages and disadvantages of belt and chain drives.	1. Listen attentively to teacher explanations. 3. Examine various machines that operate on belt and drives and identify their components. 4. Participate in class discussions and activities. 5. Prepare field trips reports.	1. Pictures of motor driven pepper grinder, motor fan belt, sewing machine, etc. 2. Bicycle and motor cycle chain drives, 3. Pictures of chain and belt driven machines.	Students to: 1. describe belt and chain drives; 1. list at least 4 machines where belt and chain drives are used; 2. describe the working principles of belt and chain drives; 3. State 2 advantages and disadvantages of belt and chain drives.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 2

SUB - THEME: TOOLS, MACHINES AND PROCESSES

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Hydraulic and Pneumatic Machines	Students should be able to: 1. identify hydraulic and pneumatic machines; 2. name the components of each machine; 3. explain the principles behind the working of pneumatic devices; 3. state the uses of the machines.	1. Examples of Hydraulic and Pneumatic Devices 2. Components of the machines. 3. Operations and Uses.	1. Displays hydraulic and Pneumatic machines/devices. 2. Explains the working principles of hydraulic and pneumatic machines/devices. 3. Demonstrates their uses. 2. Emphasizes applications. 3. Demonstrates with real components and other instructional media.	1. Examine the machines displayed and identify their components. 2. listen to teacher's explanations. 3. Ask and answer questions.	1. Hydraulic and pneumatic devices, e.g. force pump, double acting pumps, centrifugal pumps, hydraulic jacks, simple garden sprinkler, reaction turbine, water wheels, etc.	Students to: 1. name at least five hydraulic and pneumatic machines; 2. list at least three components of each machine; 3. describe the working principles of the devices; 3. mention at least three uses of the machines.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 2

SUB - THEME: TOOLS, MACHINES AND PROCESSES

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Gears	Student should be able to: 1. identify different types of gears; 2. state the uses of the various types of gears in a mechanical system; 3. determine gear ratios; 4. describe the relationship between gear ratio and speed of rotation; 5. State the functions of lubricants in gears; 6. construct and use gears.	1. Types of Gear: internal gear, external gear and level gear. 2. Uses of Gears: - power transmission, - changing direction - selecting speed. 3. Gear Ratios and Speed Rotation. 4. Functions of lubricants in Gears.	1. Displays gear systems for inspection by students. 2. Guides students examine the different types of gears in machines found in school workshop. 3. Explains the uses and functions of: - gear in machines - lubricants in gears. 4. Guides students' to: - calculate gear ratios - discussion of the relationships between gear ratio and speed rotation - construct gears with cardboard or wood.	1. Observe gears in bicycles, cars, cranes and hoists. 2. Open back of an old clock and examine the gears in the clock. 3. Participate in class discussions. 4. calculate gear ratios. 5. construct and use wooden gears.	1. Cardboard. 2. Soft wood, 3. Bicycle, 4. Old Clock, 5. Machines in school workshop. 6. School Workshop.	Students to: 1. list at least 2 types; and state 2 uses of gears. 2. state three uses of gears in mechanical systems; 3. calculate gear ratios 4. explain the relationship between gears ration and speed of machines; 5. explain the importance of lubricants in gears and other moving parts of machines; 6. fabricate a workable gear.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 2

SUB-THEME: BASIC HUMAN MOVEMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Posture and postural defects	Students should be able to: 1. explain the meaning of posture and postural defects 2. demonstrate appropriate posture in sitting, standing, walking. 3. describe postural defects like kyphosis, lordosis, scoliosis, flat feet. 3. explain the causes of postural defects	1. Meaning of posture and postural defects. 2. Kinds of posture – sitting, walking, lifting. 3. Postural defects kyphosis, lordosis, scoliosis, flat feet, bow legs. 4. Causes of postural defects- -poor nutrition - lack of exercise - poor sitting, walking and sleeping habits. 5. Demonstration of appropriate posture	1. Explains the meaning of posture and postural defects. 2. Demonstrate appropriate posture in sitting, standing, lifting. 3. Describes and demonstrates postural defects such as kyphosis, lordosis, scoliosis, flat feet, bow legs. 4. Explains the causes of postural defects	1. Demonstrate correct sitting, standing and lifting posture. 2. Explain causes of postural defects.	1. Gymnasium 2. Open field 3. Charts 4. Textbooks 5. Films 6. Video clips 7. Posters	Students to: 1. explain the meaning of posture and postural defects 2. demonstrate three kinds of posture. 3. list three postural defects. 4. list three causes of postural defects. 5. list three corrective measures. 7. mention three preventive measures.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 2

SUB-THEME: BASIC HUMAN MOVEMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Issues and challenges in physical and health education	Students should be able to: - list various issues and challenges in physical and health education. - explain the meaning of human trafficking. - explain the health implication of human trafficking on victims. - suggest reason for human trafficking. - state solutions to human trafficking - explain and list sports laws - define- - tort - negligence - assault in sports	- Issues and challenges in physical and health education. - Meaning of human trafficking. - Health implication of human trafficking on victims. - Solutions to human trafficking. - Sports laws.	- Discusses various issues and challenges in physical and health education. - Explains the meaning of human trafficking and health implication on victims. - Discusses reasons for human trafficking with the students. - Encourages students to suggest solutions to human trafficking. - Explains and lists sports laws, for example negligence, legal liability, tort and assault.	- Listen attentively to teachers explanations. - Suggest additional reasons for human trafficking. - Suggest solutions to human trafficking. - List three sports laws.	- Textbooks. - Newspapers - Radio and television news. - Posters. - Video clips.	Students to: - list various issues and challenges in physical and health education. - explain human trafficking. - mention two health implication of human trafficking on victims. - suggest reason for human trafficking. - state three solutions to human trafficking. - define: - negligence - tort - legal liability

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 2

SUB-THEME: BASIC HUMAN MOVEMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Recreation, leisure and dance activities	Students should be able to: 1. mention types of recreational activities. 2. differentiate between indoor and outdoor activities giving examples. 3. take part in recreational activities such as ludo, table tennis, soccer. 4. explain dramatic and creative rhythms and different between them. 5. list and demonstrate different dance activities for example bata, mkpokiti, atilogwu, koroso, ekombi. 6. mention and demonstrate some computer games for example around the world in eighty days, soccer.	1. Indoor and outdoor recreational activities -examples of each -differences between the two. 2. Demonstration of recreational activities by the teacher for example table tennis. 3. Explanation and demonstration of dramatic and creative rhythms for example gymnastics and aerobics. 4. Types of dance activities. 5. Demonstrations of different dance activities for example bata, mkpokiti/atilogwu, koroso. 7. Demonstration of how to play computer games. 8. Types of computer games as leisure activities.	1. Differentiate between indoor and outdoor recreational activities. 2. Give examples of indoor and outdoor recreational activities. 3. Demonstrates service and rally in the game of table tennis. 4. Explains and demonstrates aerobics and gymnastic skills. 5. Brings two professionals to demonstrate bata and atilogwu dancing steps. 6. Lists types of computer games. 7. Demonstrate how to play computer games.	1. Listen to teachers' explanation. 2. Give examples of both indoor and outdoor recreational activities. 3. Demonstrate service and rally in table tennis. 4. Practice aerobics and gymnastic skills. 5. Repeat the bata and atilogwu dancing steps. 6. List examples of computer game / sports. 7. demonstrate how to play computer games.	1. Ludo 2. Table tennis table, net, egg/ball and bats. 3. Bata and atilogwu dancers 4. Computer 5. CD/DVD Rom	Students to: 1. mention the types of recreational activities and computer games; 2. differentiate between indoor and outdoor activities; 3. take part in recreational activities; 4. explain dramatic and creative rhythms; 5. List and demonstrate different dance activities.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 2

SUB-THEME: BASIC HUMAN MOVEMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
The striking games (table tennis and tennis)	Students should be able to: 1. demonstrate the basic skills and techniques involved in striking games. 2. apply the rules and regulations governing striking games. 3. list the officials for striking games and their functions.	1. Basic skills and techniques of striking games for example grip, service, drive, chop and smash. 2. Equipment and facilities. 3. Rules and regulations. 4. Officials	1. Demonstrates the basic skills and techniques of striking games. 2. Explains rules and regulations of striking games. 3. Mentions the officials for striking games. 4. Supervises students' demonstration of the basic skills and techniques.	1. Watch keenly the teacher's demonstration. 2. Practice the basic skills- service and rally. 3. Apply the rules in a game situation.	1. Tennis courts. 2. Tennis rackets. 3. Table tennis board. 4. Table tennis balls/eggs. 5. Table tennis bats. 7. Pictures, charts, films. 8. Textbooks	1. lists three skills each in table tennis and lawn tennis. 2. demonstrates the skills and techniques involved in table tennis and lawn tennis. 3. count scores/points in games situation. 4. list three officials each for table tennis/tennis

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 2

SUB -THEME: BASIC HUMAN MOVEMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
First aid and safety education	Students should be able to: 1. define accidents, injuries; 2. state safety measures to be taken at home, school, on the sports ground, on the road; 3. list sports injuries and causes; 4. Mention first aid treatment for injuries; 5. Propose measures of preventing sports injuries, domestic accidents and road traffic accidents.	1. Definition of accidents and injuries. 2. Safety Measures: - at home - on play ground - on the roads. 3. Sports injuries, causes and first aid treatment. 4. Domestic accidents - causes and - First Aid treatment. 5. Road accidents: causes, first aid treatment. 6. Measures for preventing: - sports injuries - domestic injuries - road traffic accidents	1. Lists common sports injuries e.g. sprain, muscle pull, wound, dislocation. 2. Applies first aid treatments. 3. Explains the meaning of safety, safety education and accidents. 4. Guides a discussion on safety measures. 5. leads discussion on measures for preventing: - sports injuries -domestic accidents - road traffic accidents.	1. Listen attentively to teachers explanation. 2. Participate in class discussions and group work. 3. Define: - First Aid - Safety Education 4. List common sport injuries. 5. Apply simple first aid treatment e.g. stops bleeding, and bind wounds. 6. List causes of accidents. 7. Participate in discussions on safety measures	1.Posters 2, Charts 3. Video clips 4. First aid box and materials, 5.Text books	.Students to 1.define: - accident - injury; 2. list: - five sports injuries - three domestic injuries - five road traffic accidents; 3. apply first aid treatment to injuries; 4. suggest any five measures for preventing accidents at home, sports ground and on the road

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 2

SUB -THEME: BASIC HUMAN MOVEMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Personal, school and community health	Students should be able to: 1. state the meaning of school health programme; personal health and community health. 2. list components of school health programme; 3. list types of environmental pollution; 4. mention effects of environmental pollution; 5. propose preventive measures against environmental pollution; 6. explain the FRESH approach to school health programme	1. Meaning and components of school health programme; - Skill based health education - school health services - -Healthful school living/ healthful school environment - School feeding services - School –home and community relationship. 2. Types of environmental pollution. 3. Effects of pollution on the environment and personal health. 4. Preventive measures against environmental pollution. 5. FRESH approach to school health programme.	1. Explains the concept of school health programme. 2. Discusses the components of school health programme with emphasis on school health initiatives. 3. Leads the discussion on the effect of environmental pollution on the community and personal health. 4. Presents and explains pictures and posters of air, water and land pollution. 5. Explains the prevention of environmental pollution. 6. Explains the FRESH approach to school health programme with emphasis on school health initiatives.	1. Listen attentively to teacher's explanation. 2. Participate in class discussions and group work. 3. State the effect of environmental pollution. 4. Participate in discussions and group work on safety measures and bind wounds.	1. Posters 2, Charts 3. Pictures 4. Text books 5. Excursion	Students to: 1. explain school health programme; 2. list four types of environmental pollution and their effects; 3. mention three effects of environmental pollution; 4. suggest five general measures for preventing environmental pollution; 5. list 3 components of school health programme; 6. write in full the acronym FRESH; 7. list 4 FRESH approach initiatives in school health programme.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION
SUB-THEME: BASIC HUMAN MOVEMENT

JSS 2

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
Non-communicable diseases and their prevention	Students should be able to: 1. define non-communicable diseases. 2. state the nature of non-communicable diseases e.g. - Sickle cell - Obesity - Asthma - Anemia - Kwashiorkor, etc.	1. Meaning of Non-communicable diseases. 2. Nature of: - Sickle cell - Obesity - Asthma - Anemia - Kwashiorkor etc. 3. Preventive Measures	1. Describes the nature of: - Sickle cell - Obesity - Asthma - Anemia - Kwashiorkor 2. Discusses preventive measures	1. Recall what they have learnt about non-communicable diseases such as - Sickle cell - Obesity - Asthma - Anemia - Kwashiorkor	Pictures Posters IEC materials Photographs.	Students to: 1. explain the meaning of non-communicable diseases; 2. describe the nature of five different non-communicable diseases; 3. list 2 preventive measure for each disease.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 2

THEME: BASIC COMPUTER OPERATIONS AND CONCEPTS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Computer Software	Students should be able to: 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: - System software (operating system) - Application software (Word processing, spreadsheet, graphics etc.).	1. Guides students to: - describe computer software - identify different types computer software. - Gives examples of each type of software.	Boot the computer and identify types of software in the system.	1. Charts 2. Computer system with appropriate software.	Students to: 1. define software; 2. define two types of software; 3. give two examples of application software; 4. give an example of system software.
Operating Systems	Students should be able to: 1. define operating systems; 2. give examples of operating systems; 3. state the functions of an operating system.	1. Definition of an Operating System (OS). 2. Examples of Operating Systems (DOS, Windows, Linux, Unix) 3. Functions of Operating Systems:(Resource allocation, monitoring, Utilities)	1. Leads students to define operating system. 2. Guides the students to: - give examples of common operating system in use - state the functions of an operating system. 3. Writes notes on the chalkboard.	1. Participate in class discussions. 2. Copy the board summary into their notebooks.	1. Computer installed with operating system; 2. Interactive CD Tutorial on functions of computer operating system; 3. Charts	Students to: 1. define an operating system; 2. give example of two operating systems; 3. state three functions of an operating system.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 2

SUB- THEME: BASIC COMPUTER OPERATIONS AND CONCEPTS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Units of Storage in Computer	Students should be able to: 1. state the various units of storage and their values; 2. convert from one unit to another; 3. differentiate between kilometer, kilogram and kilobyte; 4. distinguish between kilobyte, megabyte and gigabyte.	Units of Storage: - Nibble - Byte - Kilobyte - Megabyte - Gigabyte, etc.	1. Guides students to state the units of storage and their values. 2. Leads students to convert from one unit to another. 3. Leads students to differentiate between; kilometer, kilogram, kilobyte, megabyte and gigabyte.	1. Convert from one unit to another. 2. Differentiate between kilometer, kilogram, kilobyte, megabyte and gigabyte.	- Charts of - Conversion table - Flash drives	Students to: 1. state three units of storage and their values; 2. convert a given unit to another; 3. distinguish between a kilogram and a kilobyte.
Computer 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 programmes - Meaning - Examples (Logo BASIC, etc.).	1. Guides students to identify a computer program. 1. 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.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 2

SUB-THEME: BASIC COMPUTER OPERATIONS AND CONCEPTS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Basic Programme	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 of 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.
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.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 2

SUB-THEME: BASIC COMPUTER OPERATIONS AND CONCEPTS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
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 state four safety measures that need to be taken when using computer.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 2

SUB-THEME: COMPUTER APPLICATION PACKAGES

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
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;
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 colour 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 colour 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 colour simple objects (e.g. Nigerian Flag).

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 2

SUB-THEME: BASIC KNOWLEDGE OF INFORMATION TECHNOLOGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
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 3. Benefits of IT Gadgets: 4. Disadvantages of IT:	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.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 2

SUB-THEME: BASIC KNOWLEDGE OF INFORMATION TECHNOLOGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
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 centres. 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 centres. 3. Ask and answer questions. 4. Make calls on GSM handset. 5. Create, send and store messages 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.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 2

SUB-THEME: BASIC KNOWLEDGE OF INFORMATION TECHNOLOGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Internet	Pupils should be able to: 1. define the: - internet, world wide web (www);electronic mail, (e-mail); e-mail 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, etc. 3. Creating e-mail account. 4. Benefits of internet: - information exchanges - e-learning - e-entertainment - faster and cheaper 5. Abuses of internet: - Fraud - Pornography	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. 2. Watch teacher's demonstration and practice writing valid e-mail and web addresses. 3. Copy chalkboard summary into their notebooks.	1. Internet connected computer lab or cyber café 2. Samples of e-mail address - musa@hotmail.com - emeka@yahoo.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.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 2

SUB-THEME: BASIC KNOWLEDGE OF INFORMATION TECHNOLOGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
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 educational network groups.	1. Characteristic Features 2. Uses of the internet: 3. Network groups.	1. Takes students to computer laboratory, Internet cafe or bring downloaded 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 cafe. 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.nerdcnigeria.gov.ng	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

THEME: BASIC SCIENCE

JSS 3

SUB-THEME: LEARNING ABOUT OUR ENVIRONMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Family Traits	Students should be able to: 1. mention some traits that run in their family; 2. distinguish between dominant and recessive traits; 3. identify recessive and dominant traits in their family; 4. state the importance of family traits; 5. trace their family genealogy.	1. Family traits (skin, colour, height, albinism, etc. 2. Meaning of dominant and recessive traits 3. Importance of Family traits: - Intelligence - Diseases - Resemblance - Family - Genealogy	1. Brings pictures of family members that illustrate peculiar family traits. 2. Directs discussion on: - dominant and recessive family traits; - importance of family traits - family genealogy.	1. Participate in discussions and identify these family traits among themselves. 3. Draw their family genealogies.	1. Pictures 2. Charts	Students to: 1. list 3 family traits; 2. differentiate between dominant and recessive traits and give one example of each; 3. identify recessive and dominant traits in their family; 4. state the importance of family traits; 5. draw their family genealogy.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC SCIENCE

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SUB-THEME: LEARNING ABOUT OUR ENVIRONMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Environmental Hazards I	Students should be able to: 1. explain soil erosion; 2. identify human activities that cause erosion; 3. describe methods of controlling erosion; 4. describe practical methods of preventing erosion on a given farmland; 5. describe different types of drainage patterns in their community, 6. state the causes of flooding; 7. describe how flooding can be prevented; 8. discuss effects of flooding.	1. Soil Erosion: - definition of soil erosion; - causes of soil erosion; - control soil erosion. 2. Flooding: - drainage patterns; - causes of flooding; - prevention of flooding; - effects of flooding on community and farm land.	1. Leads discussion on erosion and its effects. 2. Leads a visit to a nearby erosion site and guides students to suggest measures of control. 3. Leads students to observe the different drainage patterns around the community after it rained. 4. Leads discussions on causes, effects and prevention of flooding.	1. Participate in class discussions. 2. Visit erosion and drainage sites and write down their observations.	1. Pictures 2. Film 3. Charts	Students to: 1. define erosion; 2. explain 2 activities of man that promote erosion; 3. describe two methods of controlling erosion; 4. describe practical methods of preventing erosion on a given farmland; 5. describe two types of drainage patterns in their community; 6. state two causes of flooding in their community; 7. describe two ways of preventing flooding; 8. mention the effects of flooding on the environment.

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SUB-THEME: LEARNING ABOUT OUR ENVIRONMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Environmental Hazards II	Students should be able to: 1. mention social, economic and agricultural practices influencing bush burning; 2. discuss the effects of bush burning; 3. suggest regulations against bush burning; 4. list reasons for deforestation; 5. state different effects of deforestation on plant and animal population; 6. recapitulate government regulations against deforestation.	1. Bush burning: - practices that influence bush burning; - effects of bush burning including economic consequences; - regulations against bush burning. 2. Deforestation: - reasons for deforestation e.g. commercial and domestic firewood; - effects on the environment; - regulations on deforestation.	1. Uses charts, pictures and film to lead discussions on bush burning and the effects. 2. Guides students to suggest regulations against bush burning. 3. Shows film /pictures of natural vegetation and deforested areas. 4. Leads group discussions on effect of deforestation and government regulatory measures. 5. Organizes tree-planting exercise in the school.	1. Watch films. 2. Participate in discussions. 3. Search for information on government regulations against bush burning.	1. Films 2. Charts 3. Pictures 1. Films / pictures 2. Tree seedlings 3. Garden implements	Students to: 1. state three human practices influencing bush burning; 2. discuss two effects of bush burning on the environment; 3. suggest additional measures that can be taken to minimize bush burning; 4. state two reasons for deforestation; 5. discuss the effects of deforestation on plants and animals; 6. state two government regulations prohibiting deforestation.

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SUB-THEME: LEARNING ABOUT OUR ENVIRONMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Environmental Hazards III	Students should be able to: 1. define desertification and its effects; 2. identify geographical zones prone to desertification; 3. describe different human practices that lead to desertification; 4. identify various methods for the control of desertification; 5. identify where ozone layer is located in the atmosphere; 6. state the importance of ozone layer; 7. state the hazard of depletion of ozone layer to life on earth; 8. mention control measures against depletion.	1. Desertification: - definition; - geographical area; - causes such as overgrazing, bush burning, cutting trees for firewood, etc. - control Measures. 2. Depletion of ozone layer and its effects: - description of the ozone layer and its location in the atmosphere - importance of Ozone layer - effect of depletion of ozone layer e.g. global warming, greenhouse effect, ice melting and flooding 3. Control measure - regulation on use of chlorofluorocarbon (CFC); - reduce bush burning, and control burning in house hold activities.	1. Leads discussion and use maps of Nigeria to show areas that are prone to desertification. 2. Encourages students to participate in community effort to curb desertification. 3. Using newspaper clippings, films and pictures, leads discussion on importance and consequences of Ozone layer depletion. 4. Guides students to identify and list sources of CFCs.	1. Participate in discussion. 2. Participate in tree planting. 3. Observe films and pictures. 4. Identify and list sources of CFCs.	1. Charts 2. Pictures 3. Tree seedlings 4. Films 5. Pictures 6. Newspaper clippings	Students to: 1. define desertification; 2. describe the effects of desertification on the environment; 3. discuss three human practices that promote desertification; 4. list four methods of control of desertification; 5. state the location of Ozone layer in the atmosphere; 6. mention the importance of the ozone layer; 7. mention three hazards of depletion of ozone layer to the environment; 8. state at least two control measures for reducing the rate of depletion of the Ozone layer.

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THEME: BASIC SCIENCE

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SUB-THEME: LEARNING ABOUT OUR ENVIRONMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Drug and substance abuse	Students should be able to: 1. describe some effects of drug abuse on youths; 2. state the strategies for a healthy drug free lifestyle; 3. describe the role and activities (including anti-counterfeiting activities) of National Drug Control Agencies; 4. describe what constitutes misuse of herbal medicine.	1. Effects of drug abuse: - stomach upset; - damaged nostril and lungs; - skin rashes; - injection abscesses. 2. Prevention of drug abuse: - inculcating coping skills; - positive social interactions; - healthy life style. 3. Activities of drug control agencies: - NAFDAC - NDLEA 4. Misuse of herbal medicine.	1. Uses charts, pictures, films to guide discussion on the socio-economic effects of drug abuse. 2. Arranges for a visiting expert to discuss drug abuse, its effects and prevention. 3. Guides students to collect newspaper clippings on the activities (including anti-counterfeiting activities) of national drug control agencies. 4. Presents samples of NAFDAC listed and non-listed herbal medicines. 5. Guides pupils to discuss possible misuses of herbal medicine.	1. Watch films, pictures etc and participate in discussion. 2. Listen, and ask questions to visiting experts. 3. Collate relevant newspaper clippings for class discussion. 4. Observe and identify samples of NAFDAC listed and non-listed herbal medicine as displayed. 5. Participate in class discussion.	1. Film 2. Charts 3. Pictures 4. Posters 5. Old newspapers 6. Cardboard 7. Paper 8 samples of: - listed herbal medicines; - non-listed herbal medicines.	Students to: 1. describe two adverse effects of drug use on youths and the family; 2. mention two ways in which a youth can maintain a drug free life; 3. state two national drug control agencies and describe their roles; 4. state 2 misuses of herbal medicine.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC SCIENCE

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SUB-THEME: LEARNING ABOUT OUR ENVIRONMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Resources from living things	Students should be able to: 1. identify the resources from living things; 2. name the sources of these resources; 3. group the resources based on their sources; 4. explain the importance of these resources to self and societal development.	1. Resources from living things: - examples of Plant sources e.g. cash and food crops, dyes, drugs; - examples of animal sources e.g. hides and skin; dairy products etc. - economic importance of these resources to self and society.	1. Prepares charts/posters. 2. Guides students to identify resources and their sources. 3. Explains the importance of these resources. 4. Groups the resources as plant and animal based. 5. Invites guest speakers to talk on resources. 6. Plans and execute field trip.	1. Bring relevant materials to the class. 2. Participate in class discussions. 3. Listen to guest talk. 4. Visit factories where plant and animal produce are processed for commercial purposes.	1. Soil samples 2. Seeds 3. Seedling 4. Water 5. Empty cans, 6. Sieve 7. Hand spade 8. Charts 9. Posters 10. dyes	Students to: 1. list four resources obtained from living things and their sources; 2. classify resource as plant based and animal based; 3. state three importance of these resources.

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THEME: BASIC SCIENCE

JSS 3

SUB-THEME: LEARNING ABOUT OUR ENVIRONMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Resources from non-living things	Students should be able to: 1.mention solid minerals and where they are found in Nigeria; 2. draw a map of Nigeria showing distribution of solid mineral deposits; 3. list the importance and uses of solid minerals.	2.Resources from non-living things: - Examples - Solid Minerals like limestone, coal, gold, tin etc. - location in Nigeria; - economic importance	1. Brings samples of solid minerals to the class 2. Guides students to name solid minerals and the state where they are found in Nigeria. 3. Guides class discussion. 4. Guides students to draw map of Nigeria showing location of mineral deposits	1. Collect samples of solid minerals in their locality. 2. Participate in class discussion. 3.Draw a map of Nigeria showing distribution of solid minerals 4. Copy notes from the board.	1.Rock samples 2.Charts/posters 3.Map of Nigeria showing distribution of solid minerals	Students to: 1.name five solid minerals found in Nigeria; 2. mention the states where they are found; 3. state three uses of the solid minerals; 4. mention two uses of solid minerals; 5. draw a map of Nigeria showing distribution of solid mineral deposits.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC SCIENCE

JSS 3

SUB THEME: YOU AND ENERGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Light Energy	Students should be able to: 1. explain the meaning of reflection and refractions; 2. illustrate apparent depth and explain its danger to swimmers; 3. describe how we see things; 4. explain the meaning of dispersion and use it to interpret the rainbow.	1. Reflection 2. Refraction 3. Vision 4. Dispersion and Rainbow.	1. Guides students on activity to explain refraction. 2. Leads students to observe a coin dropped in a 500cc beaker of water. 3. Guides students to identify major parts of the eye and how vision occurs. 4. Guides students to use a prism to show dispersion of light. 5. Uses the rainbow as an example of dispersion of light by raindrops in place of prism.	1. Put a straight stick half in water and state their observation. 2. Observe the coin and use it to recognize apparent depth. 3. Identify parts of the eye and relate vision to refraction. 4. Observe colours of light separated by prism and interpret rainbow as raindrops causing dispersion.	1. Water, beaker, straight stick. 2. Coin. 3. Chart or model of the eye. 4. Source of light. 5. Prism	Students to: 1. explain refraction and reflection; 2. describe apparent depth and state one danger of apparent depth to amateur swimmers; 3. explain how we see objects; 4. explain the meaning of dispersion and describe how rainbow is formed; 5. name three important parts of the eye.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC SCIENCE

JSS 3

SUB THEME: YOU AND ENERGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Sound Energy	Students should be able to: 1. use objects to produce sound by making them vibrate; 2. explain the production of sound from a vibrating medium; 3. indicate how sound is reflected and identify objects that reflect sound; 4. explain how sound is heard by the ear.	1. Production of sound. 2. Transmission of sound. 3. Reflection of sound. 4. Hearing.	1. Provides or asks students to provide objects for production of sound e.g. tuning fork, can, empty bottles, etc. 2. Guides students to use vibrating metre rule to show how sound travels. 3. Guides the discussion to show that hard surfaces reflect sound (echo). 4. Provides chart or model of the ear and uses it to lead students to identify parts of the ear and discuss how hearing occurs.	1. Use objects provided to produce sound by making them vibrate. 2. In groups of four, set metre rule vibrating and observe how sound travels. 3. Participate in the discussion and recall objects you know that reflect sound. 4. Identify parts of the ear and indicate how hearing occurs.	1. Empty bottles, cans, whistle, tuning fork, strong stick, etc. 2. Metre rule. 3. Sketch of a dip or empty well reflecting sound (echo). 4. Chart or model of the ear.	Students to: 1. use objects to produce sounds; 2. explain the production of sound from a vibrating medium; 3. indicate how sound is reflected and identify objects that reflect sound; 4. explain how sound is heard by the ear.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC SCIENCE

JSS 3

SUB THEME: YOU AND ENERGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Magnetism	Students should be able to : 1. describe loadstone as a naturally occurring magnet; 2. state laws of magnetism; 3. illustrate magnetic poles and fields; 4. explain how to care for a magnet.	1. Loadstone. 2. Laws of magnetism. 3. Magnetic poles and magnetic fields. 4. Care for magnets.	1. Tells a story about loadstone as the earliest form of magnet. 2. Leads a discussion on "Like poles repel and unlike poles attract". 3. Guides students to identify magnetic poles and fields by using iron filing and magnetic compass. 4. Leads a discussion on how to care for magnets and write down the methods on the chalkboard.	1. Describe the historical importance of loadstone. 2. Carry out activity to verify the law of magnetism in groups of four. 3. Identify magnetic poles and fields through activity. 4. Participate in the discussion and copy the methods in their notebooks.	1. Picture of loadstone. 2. Bar magnets. 3. Cardboard sheets. 4. Iron filing 5. Compass needle. 6. Pencil. 7. Stored magnets in their casings.	Students to: 1. describe loadstone; 2. state the laws of magnetism; 3. explain how to show the magnetic fields around a magnet; 4. list two methods of caring for a magnet.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC SCIENCE
SUB THEME: YOU AND ENERGY

JSS 3

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Electrical Energy	Students should be able to: 1. indicate the direction of electron flow in a circuit; 2. set up series and parallel circuits; 3. connect ammeter and voltmeter to a series or parallel circuit and read their values; 4. state the functions of fuses and circuit breakers in a house circuit; 5. read electric meter for billing.	1. Flow of electrons. 2. Circuits: series and parallel 3. Fuses and circuit breaker. 4. Electric meter reading and billing.	1. Provides a chart showing electron flow for discussion. 2. Guide students to set up series and parallel circuits. 3. Guides students to connect an ammeter and voltmeter to a series or parallel circuit and read the amount of current flow. 4. Explains why houses are wired in parallel and discuss the functions of fuse and circuit breaker in house wiring. 5. Provides chart and guide students to practice reading the meter and calculate cost of electrical energy consumed.	1. Observe and indicate the direction of electron flow in a circuit. 2. Set up a series and parallel circuits. 3. Connect ammeter and voltmeter in the circuit and read their values. 4. State the functions of fuses and circuit breakers. 5. Explain overloading. 6. Practice reading of meters and calculation of costs of energy consumed.	1. Chart showing direction of electron flow. 2. Battery, connecting wires, key, rheostat, torch bulbs. 3. Ammeter and voltmeter 4. Chart of house wiring. 5. Wired houses. 6. Chart or model of electric meter.	Students to: 1. show the direction of electron flow in a circuit; 2. set up series and parallel circuits and distinguish between them; 3. explain the functions of ammeter and voltmeter in a circuit; 4. describe the functions of fuse and circuit breakers; 5. take meter reading; 6. calculate energy consumed.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC SCIENCE

JSS 3

SUB THEME: YOU AND ENERGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Radioactivity	Students should be able to : 1. explain the meaning of radioactivity; 2. name some radioactive elements; 3. list the three types of radiation and state their properties; 4. state the uses of radiation; 5. state the dangers in the use of radioactive rays.	1. Meaning of radioactivity. 2. Radioactive elements. 3. Types of radiation and properties. 4. Uses of radioactivity. 5. Dangers of radioactive rays.	1. Leads discussion on meaning of radioactivity. 2. Initiates discussion using a chart to name radioactive elements. 3. Uses charts to show types of radiation and discusses their properties with students. 4. Guides discussion on uses of alpha, beta and gamma radiations using charts. 5. Discusses the dangers of radioactivity.	1. Participate in discussion and explain radioactivity. 2. Recognize some radioactive elements. 3. Identify types of radiation and describe their properties. 4. Participate in discussion and state uses of α, β and γ radiations. 5. Participate in the discussion and recognize the dangers of the radiations.	1. Resource person. 2. List showing radioactive elements. 3. Chart showing types of radiation and their properties. 4. Chart of alpha, beta and gamma radiations and their properties. 5. Chart listing dangers of radiation.	Students to: 1. explain radioactivity; 2. name three radioactive elements; 3. list the three types of radiation and state a property of each; 4. state two uses of each of the radiations; 5. state three dangers of the use of α, β and γ radiations.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC SCIENCE

JSS 3

SUB-THEME: SCIENCE AND DEVELOPMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Skill Acquisition	Students should be able to: 1. explain the meaning of skill and skill acquisition; 2. state reasons for acquiring skills; 3. list types of skills; 4. state the importance of skills acquisition.	1. Meaning of skill Acquisition. 2. Reasons for skill acquisition: - taking risks; - decision making; - managing emergency situation; - survival strategy; - learning to live together. 3. Types of skills: - farming; - Basic computer literacy; - Photography; - desktop publishing and networking, etc. 4. Importance of - skill acquisition: - improves quality of life; - appreciates human capability.	1. Leads class discussions on: meaning, reasons for, importance and types of skill acquisition. 2. Leads visits to different types of professionals e.g. fine artists, mechanics, tailors, pottery makers, etc. 3. Invites resource person.	1. Participate in discussion. 2. Taking part in the visits. 3. Listen to resource person and ask questions.	Relevant charts, pictures, films and diagrams.	Students to: 1. explain skill and skill acquisition; 2. give two reasons why you need to acquire skills; 3. list three types of skills; 4. state why it is important to acquire skills.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC SCIENCE

JSS 3

SUB-THEME: SCIENCE AND DEVELOPMENT

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Ethical issues in Science and Development	Students should be able to: 1. identify right and wrong applications of science; 2. discuss the implications of the application of science to the development of the society.	1. Meaning of right and wrong application of science. 2. Implications of bad scientific practices destroy individual's life. 3. Adverse effects on a country.	1. Guides class discussion on topical issues in the application of science to human development. 2. Groups students and guides them to choose topics on good and bad scientific practices.	1. Participate in class discussions. 2. Carry out projects. 3. Write and report on projects.	1. Reference books 2. Pictures 3. Newspapers 4. Magazine clippings.	Students to: 1. list two examples each of good and wrong scientific practices; 2. give reasons for each of the above; 3. undertake group project on impact of science on society.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 3

SUB-THEME: MATERIALS AND PROCESSING

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Processing of Materials (i) Timber	Students should be able to: 1. define key terms and concepts related to timber processing; 2. describe the properties of good timber; 3. identify common timber defects; 4. explain treatments and preservation methods for timber; 5. state the importance of timber treatments.	1. Key Concepts in timber processing (growth, felling, conversion and seasoning). 2. Properties of good timber. 3. Common timber defects: twist, bowing, cupping etc. 4. Treatments and timber preservation methods. 5. Importance of timber treatment.	1. Explains key terms and concepts. 2. Displays samples of seasoned and fresh (green) timber. 3. Displays specimen of timber with common defects. 4. Guides class discussion on: - the properties of good timber; - common timber defects - Importance of timber treatment. 5. Demonstrates methods of timber treatment and preservation. 6. Plans and organizes students' excursions.	1. Examine samples of timber. 2. Participate in class discussion. 3. Make sketches of defects. 3. Watch films and slides on timber production/processing. 4. Practice the different timber treatment and preservation methods. 5. Undergo excursion to saw mills, timber yard/market, etc.	1. Posters/charts. 2. Timber specimens. 3. Chain saw. 4. Timber preservatives. etc.	Students to: 1. explain terms and concepts related to wood processing; 2. state the properties of good timber; 3. list at least three common timber defects; 4. describe treatments and preservation methods for timber; 5. list three benefits of timber treatments.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 3

SUB - THEME: MATERIALS AND PROCESSING

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
(b) Metals	Students should be able to: 1. describe different ways of processing; 2. explain the advantages and disadvantages of the different metal processing methods; 3. identify metal alloys; 4. explain the uses of common metal alloys.	1. Metal processing methods (smelting, casting, etc.) 2. Advantages and disadvantages of the different processing methods. 3. Metal alloys: examples, properties and uses.	1. Displays samples of metals and alloys. 2. Guides students to: - discuss various metal processing method; - identify equipment use for processing metals; - advantages and disadvantages of the different processing methods; - identify metal alloys; - describe their properties of the alloys; - state the uses of the alloys. 3. Arrange for students to visit metal processing workshops.	1. Examine specimens of metals and their alloy. 2. Participate in class discussion. 3. Visit metal processing workshops. 4. Ask and answer questions.	1. Posters, charts on various methods . processing metals 2. Samples of metals and metal alloys.	Students to: 1. explain different ways of processing metals; 2. state at least two advantages and disadvantages of the different processing methods; 3. name at least three metal alloys; 4. state three uses of common metal alloys.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 3

SUB - THEME: MATERIALS AND PROCESSING

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
(c) Clay, Ceramics and Glass	Students should be able to: 1. explain the methods of processing clay, ceramics and glass; 2. state the advantages and disadvantages of each methods; 3. describe the uses of clay, ceramics and glass; 4. produce simple clay, ceramics and glass household wares.	1. Methods of processing: - clay; - ceramics and; - glass materials. 2. Advantages and disadvantages of the different processing methods. 3. Production and uses of clay, ceramics and glass.	1. Displays products of clay, ceramic and glass. 2. Guides class discussion of the advantages and disadvantages of the different processing methods. 3. Takes students on excursion to clay, ceramic and glass production workshops. 4. Assists students in the design and production of house hold wares.	1. Examine the products on display and describe their properties. 2. Visit clay, ceramics and glass industries/ workshops. 3. Participate in class discussions. 4. Produce simple household products from clay, ceramics and glass.	1. Clay, 2. Potter's Wheel, 3. Ceramic products, 4. Kiln, Glass Work Equipment.	Student to: 1. describe the methods of processing clay, ceramics and glass; 2. list at least the advantages and disadvantages of each methods; 3. state at least three uses of clay, ceramics and glass; 4. make simple household wares with clay, ceramics and glass using the different processes.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 3

SUB - THEME: MATERIALS AND PROCESSING

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
(d) Plastics and Rubber	Students should be able to: 1. differentiate between rubber and plastics; 2. explain the methods of processing plastics and rubber; 3. state the advantages and disadvantages of each methods; 4. describe the uses of plastics and rubber.	1. Examples of plastics and rubber products 2. Methods of processing plastics and rubber. 3. Advantages and disadvantages of the different processing methods. 4. Uses of plastics and rubber.	1. Display products of plastics and rubber. 2. Guides class discussion on the advantages and disadvantages of the different processing methods. 3. Takes students on excursion to plastics and rubber industries.	1. Examine the products on display and describe their properties. 2. Visit plastic and rubber industries/ workshops. 3. Participate in class discussions.	1. Plastics and rubber materials. 2. Injection moulding machine. 3. Extruder 4. Blowing machine. 5. Chemicals etc.	Student to: 1. state at least two differences between plastics and rubber; 2. describe the methods of processing plastics and rubber; 3. list at least three advantages and disadvantages of each methods; 4. state at least three uses of plastics and rubber.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 3

SUB - THEME: DRAWING PRACTICE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Isometric Drawing	Students should be able to: 1. identify isometric drawings; 2. use drawing instruments to draw simple isometric objects.	1. Examples of Isometric Drawings. 2. Isometric drawing of simple shaped blocks without curves.	1. Displays models of Isometric objects. 2. Guides students to describe their properties. 3. Demonstrates isometric drawing of a block.	1. Examine and describe the properties of isometric objects. 2. Practice isometric drawing of simple shaped blocks without curved profile.	1. Drawing instruments and materials. 2. Models of shaped blocks.	Students to: 1. name at least three examples of isometric objects; 2. make isometric drawings of simple shaped blocks.
Oblique Drawing	Student should be able to: 1. describe oblique drawings; 2. draw simple oblique objects.	1. Examples of Oblique drawings 2. Simple Oblique Drawings.	1. Displays samples of oblique drawings. 2. Guides students to describe properties of oblique drawings. 3. Supervises students as they make simple oblique drawings.	1. Listen attentively to teacher explanations. 2. Practice simple oblique drawing.	1. Charts and Pictures of oblique objects. 2. Samples of oblique drawings. 3. Drawing Instruments. 4. Drawing paper.	Students to: 1. give at least 3 examples of oblique drawings; 2. draw oblique objects.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 3

SUB - THEME: DRAWING PRACTICE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Orthographic Projection	Students should be able to: 1. explain the meaning of orthographic projection; 2. identify components of orthographic projections; 3. describe the principal views in quadrants; 4. draw the orthographic views of simple objects.	1. Meaning 2. Components: - Principal planes; - Angles of projection; - Principal views. 3. Placing principal views in the quadrants. 4. Dimensioning Techniques.	1. Explains the term orthographic projection. 2. Names and illustrates the principal views and planes of projection. 3. Draws orthographic views of simple objects in the First and Third Angle Projections. 4. Demonstrates various dimensioning techniques.	1. Examine orthographic drawings and projections. 2. Discuss the components of the projections. 3. Draw orthographic views of simple objects in the First and Third Angles, layout properly and dimension correctly.	1. Drawing sheets. 2. Drawing Instruments e.g. T-square, Drawing Board, etc.	Students to: 1. explain what is meant by orthographic projection; 2. list at least three components of orthographic projections; 3. draw the orthographic views of simple objects; 4. prepare a properly laid out and dimensioned working drawings.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 3

SUB - THEME: DRAWING PRACTICE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
One-point Perspective Drawing	Student should be able to: 1. explain one-point perspective drawings with examples; 2. state the principles of one-point perspective drawings; 3. make one-point perspective drawings of simple shaped blocks.	1. One-point perspective drawing: - meaning; - examples; - principles. 2. One Point Perspective Drawing Practice.	1. Explains one-point perspective drawing and its principles. 2. Demonstrates one-point perspective drawing of a model. 3. Guides and supervises students as they make one-point perspective drawings of shapes and blocks.	1. Listen to teacher explanations. 2. Watch teacher demonstrations. 3. Practice one-point perspective drawing of simple shaped blocks.	1. Drawing sheets 2. Drawing Instruments.	Students to: 1. identify one-point perspective drawings; 2. mention at least three principles of one-point perspective drawings; 3. make one-point perspective drawings of simple shaped blocks.
Scales and Scale Drawing	Students should be able to: 1. use the metric rule to measure lengths and compare sizes; 2. explain scale drawings 3. identify scales used in drawings; 4. draw objects to given scales.	1. Measuring and comparing given sizes. 2. Scale Drawing: - full size, 1:1 - scale reduction e.g. 1:5, 1:10, 1:20, 1:100, etc. - scale enlargement e.g. 2:1, 3:1, etc.	1. Guides students to examine and identify scaled drawings. 2. Demonstrates techniques for scale drawing. 3. Supervises students as they draw objects to given scales.	1. Examine scale drawings 2. Watch teacher's demonstration. 3. Draw object to scale.	1. Metre Rule 2. Drawing Instruments e.g. pencils, drawing paper, eraser, Drawing board, Tee-square etc. 2. Samples of scaled drawings.	Students to: 1. measure lengths and compare sizes; 2. identify scale drawings; 3. describe scales used in drawings; 4. draw objects to given scales.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 3

SUB - THEME: DRAWING PRACTICE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Drawing of Plans and Blue-Print	Student should be able to: 1. interpret symbols on plans and blue-prints; 2. identify the components of a building plan; 3. draw and interpret the plan of their classroom.	1. Common symbols used in plans and blue-prints and their interpretation. 2. Identification of building components (fittings; sanitary wares e.g. sink, bath, showers, soak-away, septic tank, socket, windows, doors, etc.) on building plans. 3. Blue Print Drawing Techniques.	1. Displays building plans. 2. Leads students to identify and interpret common symbols used in plans and blue-prints. 3. Moderates class discussion of components of building plans. 4. Demonstrates correct techniques for plans /blue-print drawings.	1. Examines simple plans /blue-prints and identify the various components of the plan. 2. Participate in discussions and blue print reading. 3. Practice drawings of plans and blue-prints.	1. Building plans, 2. charts showing various architectural symbols, scale, rule, etc. 3. Drawing Instruments and materials.	Student to: 1. explain the meaning of symbols on plans and blue-prints; 2. list at least five components of a building plan; 3. draw and interpret the plan of their classroom.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 3

SUB - THEME: TOOLS, MACHINES AND PROCESSES

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
Woodwork Projects.	Student should be able to: 1. select and use appropriate tools, machines and materials for woodwork; 2. construct simple household furniture.	Production of various objects using simple woodwork machines and tools e.g. wooden tables, stools, boxes, photo frames, tee square, pot stand, book rack, book stand, shelf, etc.	1. Displays the wood materials and explain their uses. 2. Designs relevant project that involves: measuring, marking out, cutting, joining, and polishing of wood. 3. Demonstrates the steps involved marking out, cutting common joints. 4. Guides, supervise and assess students' projects.	1. Participate in class and workshop activities. 2. Choose project, make sketches, select materials and produce objects. 3. Observe safe use of hand tools and other workshop safety rules. 4. Exhibit their projects.	1. Timber. 2. Woodwork Machines and Tools. 3. Safety posters 4. First Aid materials. 5. Non-wood materials e.g. adhesive, nails, screws, hinges, wood polish, etc. 6. Woodwork workshop.	Students to: 1. produce, sketch and state the uses of 3 common joints; 2. select and use appropriate tools for woodwork; 3. produce simple household furniture from wood.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 3

SUB - THEME: TOOLS, MACHINES AND PROCESSES

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
Metalwork Projects	Student should be able to produce various objects using the machines.	1. Production of bottle openers. 2. Production of trash bin/cans, coal pots, etc. 3. Production of metal stools, chairs and benches.	1. Designs relevant project that involves: measuring, marking, cutting, filing and finishing. 2. Guides students to carry out the projects. 3. Supervises and assesses students' projects.	1. Select appropriate tools for the project (cutting, filing drilling, bending and folding tools, etc.). 2. Prepare and discuss project template/blue-print with their peers. 3. Follow the blue-print to fabricate the metalwork products. 4. Exhibit their projects.	1. Iron Sheets. 2. Iron rods. 3. Hand tools. 4. Metalwork tools used for measuring, marking, cutting, filing and finishing.	Students to produce can openers, trash bins/cans, stools, chairs, benches from metal sheets and rods.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 3

SUB - THEME: TOOLS, MACHINES AND PROCESSES

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
Soldering and Brazing	Student should be able to: 1. explain the meaning of soldering and brazing; 2. describe the operations involved in soldering and brazing; 3. join metals by soldering and brazing.	1. Meaning of soldering and brazing. 2. Soldering and Brazing Tools and Materials. 3. Operations, Types and uses.	1. Displays tools and materials. 2. Explains reasons for choice of methods for joining metals. 3. Demonstrates the procedures in soldering and brazing. 4. Supervises students as they work.	1. Examine the tools and materials. 2. Participate in class discussions. 3. Practice soldering and brazing using appropriate tools and materials.	1. Soldering and brazing tools, equipment and materials. 2. Metalwork Workshop. 3. Metal sheets and rods 4. Workshop overall.	Students to: 1. explain the meaning of soldering and brazing; 2. identify the operations involved in soldering and brazing; 3. join metals by soldering and brazing.
Machine Motions	Students should be able to explain the use of levers, linkages, slides and slots to produce linear motion in a mechanical system.	1. Linear Motion. 2. Lever arrangement to produce linear motion. 3. Use of slides and slots in mechanical systems.	1. Explains with illustrations the use of levers, linkages, slides and slots to produce linear motions. 2. Gives various practical examples.	1. Observe lever arrangements for opening high windows. 2. Identify other examples of the use of levers, linkages, slides and lots.	Scrap engines or mechanical components that contain levers, linkages, slides and slots; charts, films, etc.	Students to explain the use of levers, linkages, etc, to produce linear motion.

BASIC SCIENCE AND TECHNOLOGY

THEME: BASIC TECHNOLOGY

JSS 3

SUB – THEME: TOOLS, MACHINES AND PROCESSES

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
Rotary Motion	Students should be able to: 1. explain types and application of rotary motion; 2. explain the need to convert rotary motion to linear motion.	1. Rotary Motion: - one – way; e.g. shaft of running car; - reversible rotary motion; e.g. load drum of cranes, brakes, clutches and ratchets. 2. Principles of application. 3. Conversion of rotary motion to linear motion: - rack and pinion, screws, crank and slider; - connecting rod and piston.	1. Describes and demonstrates uses of rotary motion. 2. Explains the working of vehicle brakes and clutches. 3. Emphasizes why these types of motion are necessary in practice. 4. Describes and demonstrates only simple examples.	1. Observe actual examples. 2. Visit a motor mechanic workshop and observe some practical examples. 3. Design and produce a simple mechanical motion system. 4. Observe the crankshaft, piston and connecting rod systems in an engine.	Old shafts of cars, brakes, clutches, charts, films, Pictures of crank shaft, connecting rod and piston, cams and eccentrics.	Students to: 1. give one example, each of one-way and reversible rotary motions; 2. present project work; 3. convert rotary motion to linear motion.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 3

SUB THEME: MOVING OUR BODY PARTS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Physical fitness and body conditioning programme	Students should be able to: - list the benefits derived from physical fitness, - factors that influences physical fitness; - explain the benefits derived from physical fitness, - explain the factors that influences physical fitness.	- Benefits derived from Physical fitness. - Factors that influence physical fitness.	- Explains: - benefits derived from physical fitness; - factors that influences physical fitness. - Ask questions on: - factors that influence physical fitness; - benefits that influences physical fitness.	- Listen to the teacher's explanation. - List: - benefits of physical fitness - factors that influences physical fitness - Copy the chalkboard summary.	- Charts - Pictures - Textbooks - Posters - Chalkboard	Students to: - list; 5 benefits derived from physical fitness, 5 factors influencing physical fitness; - explain; 3 benefits of physical fitness, 3 factors that influences physical fitness.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 3

SUB THEME: MOVING OUR BODY PARTS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Recreation, Leisure and Dance Activities	Students should be able to: 1. differentiate between folk traditional, social and modern dances; 2. practice the various dances; 3. list costumes for the various dances; 4. identify the values of computer games; 5. explain other computer games such as Tennis, cricket and scrabble.	1. Pre-colonial or folk traditional dances like: - Atilogwu– Ibo - Bata, Agidigbo - (Yoruba) - Sharo (Fulani) - Langa (Hausa) 2. Social dances. 3. Foreign and Modern e.g. Reggae, Disco, High Life, rumba, classical. 4. Types of computer games e.g. - Tennis - Cricket - Soccer 5. Values of computer games.	1. Explains the various dances. 2. Demonstrate the various dances 3. Plays the music 4. Provides costumes for the dances. 5. Draws some of equipments used for the dances. 6. Lists types of computer games 7. Explains the values of computer games 8. Uses computer to play cricket and tennis.	1. Listen and Respond to teachers explanations. 2. Discuss the various dances. 3. Practice the dances. 4. Practice how to play computer games like cricket and Tennis. 5. State values of playing computer games.	1. Pre-Colonial musical instrument. 2. Radio Cassettes. 3. Costumes. 4. Flip Charts. 5. Pictures. 6. Computer. 7. CD Rom.	Students to: 1. name five types of pre-colonial dances; 2. differentiate between reggae and Bata dances; 3. list costumes for the dances; 4. list dancing steps; 5. list values of computer games; 6. demonstrate how to use computer to play tennis and cricket.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 3

SUB THEME: ATHLETICS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Track and Field	Students should be able to: 1. describe pole vault event; 2. mention the skills involved in pole vault; 3. perform the pole vault skills; 4. list basic skills in javelin; 5. describe the basic skills in Javelin; 6. perform the basic skills in Javelin; 7. draw and label the sectors with dimensions.	1. Pole vault skills: - grip; - run-up; - pole carrying; - take off; - hang; - swing up; - pull-up and bar clearance; - landing; - recovery; 2. Basic Javelin skills: - grip; - carriage; - run up; - release; - follow through; - recovery.	1. Describes pole vault event 2. Explains the different skills involved in pole vault 3. Describes the basic skills in Javelin. 4. Demonstrates the skills 5. Supervise the students practice.	1. Listen to the teacher 2. Practice the skills. 3. Listen and copy from the chalk board. 4. Practice the basic skills in turns.	1. Charts 2. Picture 3. Crossbar 4. The uprights 5. Landing foam 6. The pole, 7. Video clips etc 8. Measuring tapes 9. Flags 10. Pegs 11. Javelin 12. Chalkboard. 13. The track 14. The Landing pits 15. The throwing pits. 16. Stop watches 17. Measuring tapes.	Students to: 1. describe pole vault event; 2. mention two skills involved in Pole Vault 3. perform the skills; 4. list the basic skills in Javelin; 5. describe the basic skills in Javelin; 6. perform the basic skills in Javelin; 7. draw and label the Javelin sectors with dimension.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 3

SUB THEME: ATHLETICS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Ball Games	Students should be able to: 1. explain hockey as striking game; 2. demonstrate the basic skills and techniques involved in playing hockey; 3. apply the rules and safety regulations governing the games; 4. list the officials and their duties; 5. draw and label the Hockey pitch.	1. Hockey game. 2. Basic skills and techniques e.g. hit, stop, drive, dribble, pass, flick, push, bully/centre pass. 3. Rules and safety regulations. 4. Officials and their duties. 5. Facilities and equipment. 6. Values of the games. 7. Draw and label the (a) Hockey stick (b) Hockey pitch.	1. Explains the game hockey. 2. Teaches and demonstrates the basic skills and techniques of the games. 3. Explains the various safety rules and regulations of the games. 4. Draws and labels the Hockey stick and Hockey pitch. 5. Mentions the officials and their functions.	1. Listen to teachers explanation about Hockey game. 2. Observe teacher's demonstration of the various skills 3. Practice the various skills. 4. Apply the various skills and techniques to games situation (class inter-group competitions) 5. identify the Hockey ball, Hockey stick and the pitch. 6. State safety rules and regulation	1. Hockey pitch 2. Hockey ball 3. Hockey stick 4. Film shows 5. Textbooks 6. Charts 7. Whistle 8. IEC materials.	Students to: 1. list and explain the various skills in hockey game; 2. list three values of the games; 3. mention three safety rules in hockey; 4. list the essential officials of the game and their duties; 5. draw and label the hockey stick and pitch.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 3

SUB THEME: ATHLETICS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Group/ Combined Events	Students should be able to: 1. mention and explain the two group of combined events; 2. list the various events under each group; 3. state how combined events are competed for; 4. career guidance in physical education; 5. mention safety rules.	1. Classification as: (a) Pentathlon; (b) Decathlon. 2. List of various events under: (a) Decathlon; (b) Pentathlon. 3. The duration of the competition of Decathlon and Pentathlon. 4. Scoring the events. 5. Facilities and equipment. 6. Rules and regulations. 7. Officiating NB. Exposure to practice of various events should be emphasized. 8. Safety rules.	1. Defines: (a) Pentathlon; (b) Decathlon. 2. Demonstrates the various events under each. 3. Explains how the events are competed for and the duration for the competition. 4. Explains scoring in combined events. 5. Explains safety rules.	1. Define pentathlon and decathlon. 2. Listen to teacher's explanation and teaching. 3. Practice the events. 4. List safety rules.	1. Charts 2. Picture 3. crossbar 4. the uprights 5. Landing foam 6. The pole, 7. video clips 8. Measuring tapes 9. Flags 10. pegs 11. Javelin 12. The track 13. The jumping pits 14. The throwing pits. 15. Stop watches 16. Measuring tapes.	Students to: 1. define pentathlon and decathlon; 2. state the differences between the two; 3. list two events under each; 4. mention two safety rules in; a) pentathlon b) decathlon 5. state how combined events are competed for; 6. career guidance in physical education.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 3

SUB THEME: ATHLETICS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Nigerian Sports Heroes	Students should be able to: 1. list sport heroes in Nigeria (pre-colonial and post-colonial); 2. state the contributions of these heroes.	1. Career guidance in physical education 2. Past and present sports Heroes and their contributions in Nigeria. 3. Professionals in physical education in Nigeria.	1. Career guidance and Mention sports heroes like Jerry Enyeazu, Falilat Ogunkoya, Mary Onyali, etc. 2. States the contributions of these heroes to National Development.	1. State career opportunities in physical education 2. Mention some sports heroes and heroines.	1. Pictures of Nigerian sports heroes from newspaper, 2. Video clips	Students to: 6. state the contributions of these heroes. 7. list sports heroes in Nigeria.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 3

SUB THEME: CONTACT AND NON CONTACT GAMES

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Contact Games	Students should be able to: 1. explain taekwondo and basic techniques; 2. state importance of taekwondo; 3. state rules and regulations; 4. list officials in taekwondo; 5. practice taekwondo skills; 6. explain boxing and its basic techniques; 7. list safety rules, regulations and officials of boxing and their duties; 8. practice boxing skills.	1. Taekwondo and basic techniques 2. Importance of taekwondo 3. Safety rules, regulations and officiating in taekwondo. 4. Boxing and basic techniques 5. Safety rules, regulations and officiating in boxing.	1. Explains taekwondo and basic techniques. 2. Explains the importance of taekwondo. 3. Explains safety rules and regulation in taekwondo. 4. Demonstration of taekwondo skills. 5. Explains boxing and basic skills. 6. Demonstrates the basic skills in boxing. 7. Supervises the students' activities.	1. Listen to the teacher's explanation. 2. Practice the skills. 3. Mention the rules and regulation in taekwondo. 4. List skills in boxing. 5. List safety rules and regulation in boxing. 6. Practice the skills.	1. Playground 2. Video Clips 3. Protective devices and gears 4. Stop watches 5. Charts 6. Gong 7. Textbooks 8. Arts 9. Pictures 10. Posters	Students to: 1. explain the game of taekwondo; 2. list the skills in taekwondo; 3. state 5 safety rules and regulations of each in taekwondo; 4. state the importance of taekwondo; 5. perform the skill in taekwondo correctly; 6. state three safety rules and regulations in boxing; 7. list any two skills and techniques in boxing; 8. perform the skills in boxing correctly; 9. list officials and their duties.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 3

SUB THEME: CONTACT AND NON CONTACT GAMES

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Non-Contact Games	Students should be able to: 1. recall the basic swimming strokes; 2. demonstrate the strokes; 3. mention the equipment in swimming; 4. list various events for competition; 5. Gymnastics (perform activities on the floor/mat); 6. classify gymnastics activities; 7. explain the sequence of each of gymnastics skills; 8. explain the value of gymnastics; 9. list the officials in swimming describe their duties; 10. mention and observe safety rules in non-contact games.	1. Swimming: - Basic swimming styles (crawl, breast stroke, back stroke, butterfly, etc.) - Swimming skills; - Swimming equipment. 2. Gymnastics: e.g. Stunts and tumbling e.g. forward roll, head stand and crab walks, cat, wheel limp, frog. 3. Floor Activities: - Classification of floor activities. - Values of floor activities. 4. Officials and their duties. 5. Safety rules for non-contact games	1. Explains and demonstrates basic skills in swimming styles. 2. Explains the different competitions in swimming 3. Display and discuss the equipment and facilities for swimming. 4. Guides students to: - identify and classify floor activities - list and discuss the duties of swimming and gymnastics officials. - explain the values of floor activities. 5. Demonstrates Stunts and tumbling e.g. forward roll, head stand and crab walks, cat, wheel limp, frog.	1. Listen to the teacher's explanation. 2. Watch the demonstration. 3. Practice various swimming styles. 4. Ask and answer questions 5. Copy the chalkboard summary. 6. Practice the various floor activities. 7. Write the group of floor activities.	1. Swimming pool 2. playground 3. Whistle 4. Swimming trunks 5. Floating tubes. 6. Pictures, 7. Textbooks 8. Gymnastics mat 9. Charts 10. Pictures	Students to: 1. list and demonstrate the various strokes in swimming; 2. mention two equipment used in swimming; 3. list various swimming competitions/ events; 4. list 3 officials and their duties in swimming and gymnastics; 5. list and perform five floor activities; 6. explain four values of floor activities.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 3

SUB THEME: HEALTH EDUCATION

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Personal, School and Community Health I	Students should be able to: 1. explain types of families; 2. list duties of each member of the family; 3. differentiate between puberty in boys and girls; 4. list the consequences of teenage pregnancy; 5. demonstrate assertiveness and communication skills (career guidance); 6. name agencies promoting sports in Nigeria; 7. name agencies promoting health education in Nigeria; 8. explain career opportunities in Physical Education.	Family Life Education: 1. Meaning and types of families. 2. Duties of members of the family. 3. Puberty in boys and girls. 4. Teenage Pregnancy and its consequences. 5. Assertiveness and communication skills. 6. Career guidance 7. Sport promotion agencies and bodies in Nigeria a) Sports Associations b) NAPER.SD c) Nigeria institute of sports.	1. Explains the meaning of family. 2. Identifies family members. 3. Discusses puberty and health consequences of teenage pregnancy. 4. Guides students on how to acquire assertive communication and refusal skills. 5. Previews activities of sports and health promoting agencies.	1. Listen attentively. 2. Ask/ Answer questions 3. Participate in role playing (Play let) 4. List career opportunities. 5. Bring to the class newspaper/ magazines clippings on workers in sports and health related services 6. Listen to Teacher and take notes.	1. Pictures 2. Flip Charts 3. Textbooks. 4. Posters 5. Newspaper 6. Magazine. 7. Video show 8. Role Play 9. IEC materials 10. Specimen	Students to: 1. state two types of families; 2. list 3 duties of each member of the family; 3. state 3 major body structural differences between boys and girls at puberty; 4. list four consequences of teenage pregnancy; 5. demonstrate how to say no to pressure from friends to engage in sex and drug abuse.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 3

SUB THEME: HEALTH EDUCATION

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Personal, School and Community Health II	Students should be able to: 1. explain aging; 2. list life enhancing measures for and against ageing; 3. explain death; 4. state steps to support a dying person; 5. differentiate between drug use, misuse and abuse; 6. list reasons for drug use, misuse and abuse; 7. state health consequences of drug use, misuse and abuse; 8. name ways drug abuse can be prevented among young people.	1. Agencies/ organizations promoting health education in Nigeria e.g. NGOs, Ministry of Health, NAFDAC, WHO etc. 2. Personal Health:- Description of ageing, death 3. Life enhancing measure against ageing e.g. exercise, nutrition, rest and sleep. 4. Supporting dying, grieving and ageing persons. 5. Meaning of drug use, misuse and abuse/ 6. Categories of drugs - Prescription of drugs/ medicines - Non-prescription of drug/ medicine. - Gateway Drug - Health consequences of Drug misuse abuse. - Ways of preventing drug misuse and abuse among young people.	1. Discusses career opportunities in health education: - teaching; - journalism; - social work, etc. 2. Uses pictures to explain ageing dying and death stages of life 3. Discusses how to age gracefully. 4. Explains: - the differences between drug use, misuse and abuse. - Categories of drugs. 5. Explains why drugs are misused and abused. 6. Explains health consequences of drug misuse and abuse.	1. Narrate/state experience with behaviour of Aged parents and relatives. 2. Give reasons for drug misuse and abuse. 3. Participates in role playing.	1. Pictures 2. Flip Charts 3. Textbooks. 4. Posters 5. Newspaper 6. Magazine. 7. Video show 8. Role Play 9. IEC materials 10. Specimen	Students to: 1. name three each of sports and health bodies; 2. state the meaning of ageing and death; 3. demonstrate how to cope with grief person; 4. distinguish between drug use, misuse and abuse; 5. list three categories of drugs; 6. list two reasons for drug misuse and abuse; 7. state four health consequences of drug abuse; 8. state three ways drug abuse can be prevented.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 3

SUB THEME: HEALTH EDUCATION

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Pathogens, diseases and their prevention	Students should be able to: 1. explain the nature of communicable diseases; 2. explain the mode of transmission of communicable diseases; 3. list diseases factor and causative agents; 4. explain the various preventive and management measures; 5. explain the nature of non-communicable diseases; 6. state how to prevent non communicable diseases.	1. Nature of communicable diseases: - Measles - Mumps - malarial - Pneumonia, etc. 2. Mode of transmission of the disease. 3. Factors and causative agents 4. Prevention and Manage of non-communicable diseases: - Sick cell - Obesity - Kwashiorkor, etc.	1. Discusses the nature of communicable disease. 2. Discusses mode of transmission of communicable diseases. 3. Explains factors and causative agents. 4. Discusses preventive measures. 5. Describes the nature of non-communicable disease. 6. The ways non communicable diseases can be prevented.	1. Narrate their experiences when they suffered from some of the communicable diseases. 2. List some of the communicable diseases. 3. Explain the mode of transmission of communicable diseases. 4. Write the measures for preventing communicable diseases. 5. Identify factors and causative agents. 6. Recall teacher's explanation of the nature of non-communicable diseases. 7. List the ways non communicable diseases can be prevented.	1. Pictures 2. textbooks 3. Flip Charts 4. Video Clips.	Students to: 1. explain nature of five communicable diseases; 2. discuss the mode of transmission of two communicable diseases; 3. state three ways of preventing communicable diseases; 4. list causative agent of the two named diseases; 5. describe the nature of non-communicable diseases; 6. list three non-communicable diseases; 7. list four ways non-communicable diseases can be prevented.

BASIC SCIENCE AND TECHNOLOGY

THEME: PHYSICAL AND HEALTH EDUCATION

JSS 3

SUB THEME: HEALTH EDUCATION

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Family Health	Students should be able to: 2. identify types of diseases and modes of transfer; 3. identify disease vectors such as mosquitoes and houseflies; 4. define HIV/AIDS and STIs; 5. list examples of STIs; 6. explain the consequences of contracting infections and diseases; 7. list ways of preventing infections and diseases; 8. draw the life cycle of mosquito and other vectors; 9. state control measures.	1. Types of Diseases and modes of transfer. 2. Disease vectors. 3. Types of disease vectors. 4. Life cycle of the mosquito and other vectors. 5. Control measures: water drainage, insecticides, oil spreading/ spraying. 6. Disease Transmission 7. STIs, HIV/AIDS 8. Consequences of contracting diseases on individual, - family - society. 9. Disease prevention: - sanitation - education - immunization - choice of life partner.	1. Brings posters/pictures of diseased persons to the class. 2. Guides class discussion. 3. Invites guest speakers to talk to learners about: - disease types; - mode of contracting infection - disease vectors; - preventive method.	1. Participate in class discussion and listen to guests lectures. 2. Ask and answer questions. 3. Take notes.	1. Posters, Pictures, Films strips, Video clips, and Charts. 2. Insecticides. 3. Oil/ kerosene. 4. Samples of treated and untreated water. 5. Insecticide treated nets.	Students to: 1. list five types of disease; 2. define STI, HIV/AIDS; 3. state their causes and mode of transmission 4. identify 3 disease vectors 5. mention 3 ways of preventing diseases 6. explain the consequences of contracting disease/ infections; 6. draw the life cycle of mosquito and other vectors; 7. state any three measures for controlling disease vectors.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 3

SUB-THEME: BASIC COMPUTER OPERATIONS AND CONCEPTS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Computer carrier Opportunities	Students should be able to: - draw a list of career opportunities associated with computer usage; - state the functions of each of these professionals; - list the qualities of good computer professionals; - list the computer professional bodies; - state the functions of each of the computer professional bodies and association.	- Computer Professionals: - Computer Manager - System Analyst - Programmers - Computer educator - Computer engineers and technicians - Operators. - Qualities of good Computer professionals. - 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).	- Displays the pictures of different computer professionals and leads the students to identify them and their functions. - Leads students to identify the qualities of good computer professionals. - Leads students to identify the professional bodies to which a computer Professional can join. - Describes the functions of the computer professional bodies.	- Examine the pictures or charts, and identify the computer professionals and their specific responsibilities. - State the qualities of good computer professionals. - Listen to the teacher's description of professional bodies and their functions. - Participate fully in such class discussion.	- Pictures/ harts showing different computer professionals at work. - Pictures/ charts showing different computer professionals at work.	Students to: - list four computer professions; - state two functions of given computer professionals; - list four qualities of a good computer professional; - list four computer professional bodies; - state the functions of each of the computer professional bodies listed.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 3

Sub-THEME: BASIC COMPUTER OPERATIONS AND CONCEPTS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
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.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 3

SUB-THEME: BASIC KNOWLEDGE OF INFORMATION TECHNOLOGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
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.	1. Examples of Search Engines: - google.com - mama.com - ask.com - yahoo.com 2. 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. 3. Gives students project on HIV/AIDS and Voter Education Handbook (VEH), etc.	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 download information on: - HIV/AIDS prevention/prevalence 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.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 3

SUB-THEME: BASIC KNOWLEDGE OF INFORMATION TECHNOLOGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
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 - Labour 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 download 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.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 3

SUB-THEME: COMPUTER APPLICATION PACKAGES

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
Database	Students should be able to: 1. explain the following database terminologies (fields, record, file, and key); 2. identify various forms of database; 3. start and open an existing database; 4. input, store and retrieve information from a database application.	1 Database Terminologies: - Fields - Records - File - Database - Key, etc. 2. Forms of Data Base: - Flat file - Hierarchical - Relational, etc.	1. Explains the meaning of fields, records, file, database and keys. 2. Explains the forms of database. 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; 2. 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.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

SUB- THEME: COMPUTER APPLICATION PACKAGES

JSS 3

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
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, LOTUS 1 2 3, 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.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 3

SUB-THEME: COMPUTER APPLICATION PACKAGES

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
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 - Starting 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.

BASIC SCIENCE AND TECHNOLOGY

THEME: INFORMATION TECHNOLOGY

JSS 3

SUB-THEME: COMPUTER APPLICATION PACKAGES

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	STUDENTS		
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 given worksheet. 3. Gives students practice exercises. 4. Moves around to assess students and give necessary assistance. <u>Note:</u> Use available data on HIV/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.

BASIC SCIENCE AND TECHNOLOGY

RESOURCE PERSONS THAT DEVELOPED THE BASIC SCIENCE AND TECHNOLOGY CURRICULUM

CONCEPT DEVELOPMENT WORKSHOP	
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BASIC SCIENCE AND TECHNOLOGY

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BASIC SCIENCE AND TECHNOLOGY

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