The New Senior Secondary Curriculum for Sierra Leone

Subject Syllabus for Health Sciences

Subject stream: Sciences and Technologies

This subject syllabus is based on the National Curriculum Framework for Senior Secondary Education. It was prepared by national curriculum specialists and subject experts.

SSSC
Senior Secondary School Curriculum

Curriculum Elements for Health Sciences

Subject Description

Health Science is a general term covering all the applied disciplines involved in the delivery and improvement of health care. There are more than 50 different specialisations within the field of Health Science, which can be grouped into three major disciplines: physiological science, clinical engineering and medical physics, and life science.

Rationale for Inclusion of Health Science in the Senior Secondary School Curriculum

The study of Health Sciences:

a) provides information about disease which helps us to deal with illness
b) helps improve human health and well-being
c) helps improve personal fitness
d) guides individuals and communities how to live healthier lives
e) provides a foundation in the sciences
f) promotes understanding in disaster relief
g) provides opportunities for further study and employment in the medical and health research fields

General Learning Outcomes (Broad Goals)

Students will

a) acquire basic knowledge of the organs of the body and the necessary skills for maintenance of health
b) acquire and practice positive health behaviours in the community
c) appreciate the ecological relationships between humans and their environment
d) be equipped for professional training and employment in health-related careers

Content (Themes/ Topics)

Pioneers and Scientists

- African scientists

Growth and Development

- Factors affecting growth

Cells

- Structure of typical animal cells
- Types of cells
- Cell division (mitosis)
- Meiosis
- Formation of tissues organs and systems

Nutrition

- Classes, sources, and functions of food nutrients
- Food tests
- Balanced diet
- Calorific value of food
- The process of digestion, absorption, assimilation
- Teeth-types, structure, functions, of the different teeth

Beverages and Food Preservation

- Beverages
- Food preparation
- Food hygiene
- Food preservation

Respiration

- The respiratory organs of humans
- External respiration
- Tissue respiration
- Respiratory disorder

Circulation

- The structure of the heart
- Structure and functions of the blood
- Structure and functions of the blood
- Structure and function of the lymph
- Structure and function of the blood vessels
- General circulation
- Blood groups
- Disorders of the circulatory system

Community Health

- Family and school health
- School health services

Environmental Health

- Water supply
- Waste disposal
- Sewage disposal
- Housing
- Problems of environmental health
- Pollution of
  - Air
  - Water
  - Land
- Public health agencies
- Vital statistics

The Skeletal System and Muscles

- The axial skeleton
- The appendicular and types
- Principle of levers

- Structure and types of muscles
- Movement of the arm
- Posture and postural defects

First Aid

- The First Aid kit
- Accidents
- Safety education
- Disaster relief

Excretion

- The urinary system
- The kidney
- Urine formation in the kidney
- The lungs and skin as excretory organs

Physical Health

- Body forms
- Factors for maintenance of health
- Personal hygiene
- Homeostasis

Emotional and Mental health

- Attributes of emotional health
- Personality defence mechanism
- Metal illness

Chemical Substances that affect Behaviour

- Tobacco
- Impact of tobacco smoking
- Drugs
  - Types of drugs
- Alcohol
  - Effects of alcohol

Consumer Health

- Consumer health products
- Factors influencing choice of consumer products
- Role of diagnostics and dispensing services

The Nervous System

- Structure and functions of the brain
- Structure and functions of the spinal cord
- The nerve cell - structure, functions, types
- Voluntary and reflex actions
- Disorders of the nervous system

The Sense Organs

- Structure and functions of the eye
  - How images are formed in the eye
  - Defects of the eye
- Structure and functions of the ear
  - Auditory defects
- Structure and functions of the skin
- The tongue and nose as sensory organs

The Endocrine System

- The endocrine organs and their secretions
- Functions of the various hormones

The Reproductive System

- The female reproductive system
- The male reproductive system
- Secondary sexual characteristics
- Conception, pregnancy, foetal development, and birth
- Disorders of the reproductive system

- Family life and sex education

Factors necessary for communicable disease to occur

- Terms used
- Causative agents and carriers of disease
- How communicable disease spread
- Principle of prevention and control of communicable disease

Classification of Communicable Disease

- Causes, Symptoms, Prevention/ Control of:
  - Airborne diseases
    - Whooping cough
    - Poliomyelitis
    - Tuberculosis
  - Waterborne diseases
    - Dysentery
    - Cholera
    - Typhoid
    - Schistosomiasis
  - Insect borne diseases
    - Malaria
    - Yellow fever
    - Trypanosomiasis
  - Contagious diseases
    - Gonorrhoea
    - Syphilis
    - Athletes foot
    - Ringworm
    - Leprosy
    - Scabies
  - Worm infestations
    - Roundworm
    - Tape worm
    - Hookworm
    - Guinea worm
  - Non-communicable diseases
    - Tetanus
    - Diabetes
    - Sickle Cell
  - Animal borne disease
    - Rabies

Structure of the Syllabus Over the Three Year Senior Secondary School Cycle

	SSS 1	SSS 2	SSS 3

Term 1	**Pioneers and Scientists**
	• African scientists
	
	Growth and Development
	• Factors affecting growth
	
	Cells
	• Structure of typical animal cells
	• Types of cells
	• Cell division (mitosis)
	• Meiosis
	• Formation of tissues organs and systems
	
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		• The appendicular and types
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		• Movement of the arm
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			The Sense Organs
			• Structure and functions of the eye
			  ○ How images are formed in the eye
			  ○ Defects of the eye
			• Structure and functions of the ear
			  ○ Auditory defects
			• Structure and functions of the skin
			• The tongue and nose as sensory organs

Term 2	**Beverages and Food Preservation** • Beverages • Food preparation • Food hygiene • Food preservation	**Excretion** • The urinary system • The kidney • Urine formation in the kidney	**The Endocrine System** • The endocrine organs and their secretions • Functions of the various hormones

	Respiration • The respiratory organs of humans • External respiration • Tissue respiration • Respiratory disorder	• The lungs and skin as excretory organs **Physical Health** • Body forms • Factors for maintenance of health • Personal hygiene • Homeostasis	**The Reproductive System** • The female reproductive system • The male reproductive system • Secondary sexual characteristics • Conception, pregnancy, foetal development, and birth • Disorders of the reproductive system • Family life and sex education

Term 3	**Circulation**
	• The structure of the heart
	• Structure and functions of the blood
	• Structure and functions of the blood
	• Structure and function of the lymph
	• Structure and function of the blood vessels
	• General circulation
	• Blood groups
	• Disorders of the circulatory system
	
	Community Health
	• Family and school health
	• School health services
	
	Environmental Health
	• Water supply
	• Waste disposal
		Emotional and Mental health
		• Attributes of emotional health
		• Personality defence mechanism
		• Metal illness
		
		Chemical Substances that affect Behaviour
		• Tobacco
		• Impact of tobacco smoking
		• Drugs
		  ○ Types of drugs
		• Alcohol
		  ○ Effects of alcohol
		
		Consumer Health
		• Consumer health products
		• Factors influencing choice of consumer products
		• Role of diagnostics and dispensing services
			Factors necessary for communicable disease to occur
			• Terms used
			• Causative agents and carriers of disease
			• How communicable disease spread
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			  ▪ Whooping cough
			  ▪ Poliomyelitis
			  ▪ Tuberculosis
			  ○ Waterborne diseases
			  ▪ Dysentery
			  ▪ Cholera
			  ▪ Typhoid

	• Sewage disposal
	• Housing
	• Problems of environmental health
	• Pollution of
	  ○ Air
	  ○ Water
	  ○ Land
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	• Vital statistics
			▪ Schistosomiasis
			○ Insect borne diseases
			▪ Malaria
			▪ Yellow fever
			▪ Trypanosomiasis
			○ Contagious diseases
			▪ Gonorrhoea
			▪ Syphilis
			▪ Athletes foot
			▪ Ringworm
			▪ Leprosy
			▪ Scabies
			○ Worm infestations
			▪ Roundworm
			▪ Tape worm
			▪ Hookworm
			▪ Guinea worm
			○ Non-communicable diseases
			▪ Tetanus
			▪ Diabetes
			▪ Sickle Cell
			○ Animal borne disease
			▪ Rabies

Teaching Syllabus

Discipline: Sciences and Technologies Subject: Health Science

Topic/ Theme/ Unit	Expected learning outcomes	Recommended teaching methods	Suggested resources	Assessment of learning outcomes
Pioneers and Scientists • African scientists	**Students will be able to:** State the contributions of the following African pioneers in Health Science: Lambo, Omolulu, Ogunlesi, Oluwole, Odeku, Nicol, Konotey-Ahulu, Adeniyi-Jones.	• Introduce the lesson by talking about pioneers in science that are not African, e.g., Heming and Lister, • Ask the students to name any Sierra Leonean scientist e.g., Davidson Nicol is known for his work on diabetes • Ask the children to go to the university for the names of some more local scientist • Let pupils find out the contribution of Lambo, Oluwole, Ogunlesi, Odekun, Nicol, Konotey-Ahulu, Adeniyi-Jones	• Picture • University • Textbooks • Internet	• Pupils go to the university to find out about local and other African health scientists and their contribution to health science.
Growth and Development • Factors affecting growth	**Students will be able to:** • define growth and development • state the factors that affect growth	• Introduce the lesson by asking the pupils what it means when someone says that you have grown. • Point out that growth is not just an increase in size but an increase in the number of cells. • Ask pupils what development means. • Point out that development involves cell division and enlargement. • Name mitosis and meiosis as two processes which take place in growth and development. • Discuss factors that may affect growth with students.	• Picture • Charts • Textbooks	• Compare growth in height by class members. Pupils measure their height and write them on the blackboard. • Pupils discuss factors that may affect growth.
Cells • Structure of typical animal cells • Types of cells	**Students will be able to:** • describe the structure of an animal cell	• Introduce the lesson with a drawing of an animal cell on the blackboard. • Let the pupils list the labelled parts. • Talk about the functions of the various parts. • Explain the two types of cells.	• Pictures • Diagrams • Textbooks • Charts	• Question and answer session on function of cell parts.

• Cell division (mitosis) • Meiosis • Formation of tissues organs and systems	• list various types of cells understand that: • cells are formed by cell division • mitosis involves several stages • state the role of mitosis in growth, cell replacement and repair, and reproduction. • state that meiosis results in the formation of gametes. • state the significant of meiosis • state similarities and differences between mitosis and meiosis • define tissues, organs, and systems and give examples of each.	• Ask pupils to give examples of somatic cells and to name the two sex cells. • Ask the pupils the meaning of growth. • Explain to the pupils that the process of growth is possible by the process mitosis. • Explain the different stages of mitosis. • State the role of mitosis in the cell. • What is the significance of mitosis? • Set up a microscope and allow the student to observe mitosis in a prepared slide of onion root • Tell the pupils that meiosis also involves break down of nuclei. • State the importance of meiosis in the formation of gametes and carefully explain the process. • Ask pupils to now state the differences between mitosis and meiosis e.g., chromosome number is kept constant in mitosis but half in meiosis. • Pupils observe prepared slide of meiosis. • Asking the pupils to define tissues, organs, and systems. • From previous knowledge in JSS, let them write down examples of tissues, organs, and systems in animals, e.g., nerve tissue, eye, digestive system. • Explain the link between tissues, organs, and systems.	• Prepared slides • Microscope • Light bulb	• Draw and label typical animal cells. • Ask pupils to draw the following cell: ○ Nerve cell ○ Muscle cell ○ Blood cell ○ Sperm cell • Pupils draw and label prophase, anaphase, and telophase of mitosis. • Pupils try to identify some of the stages on the slides. • Ask pupils to write down the differences between mitosis and meiosis. • Let the pupils draw stages of meiosis. • Individually, ask pupils to give examples of either a cell, tissue, organ, or system

Nutrition
• Classes, sources, and functions of food nutrients
• Food tests
• Balanced diet
• Calorific value of food
• The process of digestion, absorption, assimilation
• Teeth-types, structure, functions, of the different teeth
	Students will be able to:
	• define food
	• explain why we need food
	• name the classes of food nutrients
	• give example of food from each class
	• state the function of the different classes of food
	• perform simple test for:
	• starch
	• simple sugar
	• complex sugar
	• proteins
	• fats
	• state the importance of water in the diet
	• recognize the need for a balanced diet
	• write down a meal representing a balanced diet
	• state the calories needed due to
		• Ask pupils what they ate before coming to school (write some on the blackboard for future use).
		• Ask why we eat food.
		• Ask what the different classes of food are.
		• Ask them to give examples of each class (include local examples).
		• Describe the structure and functions of the various classes.
		• Food tests: describe how to test for:
		  ○ starch
		  ○ simple and complex sugars
		  ○ proteins
		  ○ fats
		• Divide the class into four groups and let each group conduct all the food tests
		• Pupils record their observations of the food tests and make their conclusions.
		• Discuss and give reasons for the importance of water in the diet.
		• Ask what a balanced of diet is
		• Ask pupils what they ate for lunch. Let them analyse the meal and say whether it provides a balanced diet
		• What are some of the factors that can cause balanced diet
		• How can we prevent an unbalanced diet
		• Tell pupils about the calorific value of food nutrients
		• Ask pupils to state which of these need more calories.
		  ○ An old woman or an adolescent girl
			• Iodine
			• Bottle stopper
			• Bread
			• Fehling's A & B solution
			• Benedict's solution
			• Heat sources
			• Glucose
			• Test tube
			• Sucrose
			• HCL
			• Test tube
			• Sodium
			• Textbook
			• Charts
			• Filter paper
			• Butter
			• Pictures of different types of food substances
			• Actual food substance e.g., rice, garri, fish, oil, fruits.
			• Small dead rat or model showing the
				• Put a list of food substances on the blackboard.
				• Let the pupils classify them as carbohydrates, protein, and fats.
				• Pupils record the results of their food tests and give their conclusions
				• Pupils write down the use of water in our diet.
				• Ask pupils to write out a balanced meal using local foods
				• State the nutrients in each of the foods selected as evidence of a balanced meal.
				• Research and estimate the calories provided by the portions of foods in the meal

	age, health and occupation • Describe the organs of the digestive system • State the location and functions of the liver and pancreas • describe the process of digestion in the different parts of the alimentary canal. • name the enzymes produced during digestion, where they are produced and what they do • state the end products of digestion. • explain the process of absorption • state the uses of the digested food • name the different types of teeth • state their functions	○ A teacher or a mechanic ○ A sick child or a healthy child. • (Discuss) • Using a model or a dissected rat, describe the digestive system. • Ask pupils to state the functions of the different organs of the digestive system. • Describe/ show where the liver and pancreases are. • Ask pupils to define digestion. • Ask the pupils to explain why we need to digest our food. • Go through the process of digestion pointing out the enzymes in the digestive system and the role they perform as well as the end products of digestion. • Ask pupils to state what happens to the end products of digestion. • Explain the process of osmosis and diffusion in absorption. • How is the small intestine adopted for this function? • Ask the pupils what we use food for in our bodies. • Define the process and explain the use of food in tissue respiration. • Use a model of the skull or the jaw of any animal to talk about the different types of teeth. • Ask pupils about the milk and permanent sets of teeth. • Describe the structure of the tooth pointing out the functions of the various parts.	digestive system • Model of the skull or animal jaw • Different types of teeth	• Determine how much of the daily calorific requirement is met for different people (male/ female; old/ young, active/ inactive, etc.) • Pupils draw and label the digestive system • Question and answer session on the functions of the organs of the digestive system. • Oral questions on the process of digestion • Pupils find out some disorders of the digestive system and their prevention • Pupils draw and label the structure of a villus • Pupils define the process of assimilation.

	• describe the structure of a tooth			• Draw and label parts of a named tooth
Beverages and Food Preservation • Beverages • Food preparation • Food hygiene • Food preservation	**Students will be able to:** • explain the terms beverages and food preservation • name some alcoholic and non-alcoholic beverages • state the effects of non-alcoholic beverages and alcoholic beverages on health • understand why good kitchen hygiene is necessary during food preparation • discuss the effects of poor food hygiene • understand various safe methods of food preservation and the advantages	• Start by asking the pupils to state what a beverage is. • Ask them to name some alcoholic and some non-alcoholic beverages. • Discuss the effects of non-alcoholic beverages and alcoholic beverages on health on health. • What are the benefits of washing fresh food, table-tops and hands during the cooking preparations? • Ask pupils to state some of the ways to ensure that food is cooked in hygienically. • Discuss the different method of cooking food. • Explain how the cooking method affects food nutrients. • Discuss precautions when cooking meat and fish. • What utensils are used for food preparation and serving? • How do we take care of kitchen utensils before and after cooking • What are the effects of poor kitchen hygiene? • Ask pupils how they preserve food at home and list the methods on the blackboard (How is food preserved in the villages?) • Consider different ways of preserving food (refrigeration/ freezing, drying, pickling, bottling/ canning, salting, smoking/ curing, etc.)	• Textbooks • Pictures • Charts • Resource person from home economics department	• Pupils list of local alcoholic and non-alcoholic beverages. • Pupils talk about the benefits of hand washing • General discussion on food preparation. • Pupils discuss diseases associated with poor kitchen hygiene. • Find local and other examples of food that is preserved. • Ask pupils to state the advantages and disadvantages of ○ Freezing ○ Drying ○ Smoking ○ Salting ○ Etc.

	and disadvantages of each.	• Discuss the advantages and disadvantages of each method. • How is food preserved for export? • What types of containers should food be kept and preserved in? State the reasons		

Respiration
• The respiratory organs of humans
• External respiration
• Tissue respiration
• Respiratory disorder
	Students will be able to:
	• describe the respiratory organs
	• state the functions of the various parts
	• explain inhalation and expiration
	• explain cellular respiration
	• name some respiratory disorders
		• Start by asking the pupils what they understand about respiration.
		• Ask them to name the organs for respiration or use a chart model.
		• Ask them to state the functions of the respiratory system.
		• From a chart of the respiratory system let them describe the structure of the lungs.
		• Get the pupils to take a deep breath and describe what happens to chest cavity. Explain that breathing involves movement of the chest cavity.
		• Explain the mechanism of breathing and do a demonstration using the bell jar and balloons
		• Demonstrate that expired air contains carbon-dioxide.
		• Discuss where tissue/ cellular respiration occurs and describe how the process takes place with the aid of diagrams.
		• Discuss respiratory disorders These should include
		  ○ Asthma. ...
		  ○ Chronic Obstructive Pulmonary Disease (COPD) ...
		  ○ Chronic Bronchitis. ...
		  ○ Emphysema. ...
		  ○ Lung Cancer. ...
		  ○ Tuberculosis
			• Textbook
			• Charts
			• Model of the respiratory organs
			• Bell jars
			• Two balloons
			• Glass tubing
			• Rubber sheet
			• Conical flasks
			• Glass tubes
			• Lime water
			• Corks
			• Resource person from the medical profession
			• Internet search for respiratory disorders, e.g., 8 Common Respiratory Diseases (verywellhealth.com)
				• Pupils draw and label the respiratory organs
				• Pupils draw the experimental set up and write up the experiment.
				• Short answer questions on tissue respiration
				• Pupils research respiratory diseases to get more information (causes/ symptoms etc).

		○ Cystic Fibrosis/ Bronchiectasis. ○ Pneumonia. ○ Pleural Effusion. • Brainstorm pupils' knowledge of these diseases and explain those that the pupils have no knowledge about. • (Explain there are two types of respiratory diseases and disorders: Infectious and Chronic. Chronic lung diseases, fall into one of two main classes: Obstructive or Restrictive.) • Note the dangers of occupational and environmental factors in lung disease: e.g., smoking, pollution, dust inhalation		
Circulation • The structure of the heart • Structure and functions of the blood • Structure and functions of the blood • Structure and function of the lymph • Structure and function of the blood vessels • General circulation • Blood groups	**Students will be able to:** • describe the structure of the heart • explain how the heart is adapted to carry out its functions. • describe the structure of the blood and state its functions. • state where lymph is found and describe its composition • state the characteristics of	• Ask the pupils how many of them have seen heart that is sold at the market. Ask them to describe it. • Show the class a piece of heart from the market to let them observe the valves and the muscular nature of the heart. • Inform the pupils that blood is tissue and ask the pupils to tell you why it is tissue. • Discuss with the pupils, the structure and functions of the blood. • Tell pupils to observe blood vessels at the back of the hand. • Name the three types of blood vessels and state their characteristics (arteries, veins, capillaries). • Let pupils individually compare arteries, veins, and capillaries. • Let pupils check their pulse and count the number of heart beats in 30 secs.	• Model of the heart • A piece of heart from the market • Textbooks • Prepared slides • Blackboard • Resource person from blood bank	• Pupils write down how the heart is adapted to carry out its functions • Pupils draw and label the heart • Question and answer session on the structure and functions of the blood. • Pupils observe prepared slide of the blood • Find out where Lymph nodes are found. • Pupils compare arteries veins

• Disorders of the circulatory system	○ Arteries ○ Veins ○ Capillaries • compare arteries, veins, and capillaries • state the importance of capillaries • understand why humans have a double circulation • distinguish between pulmonary and systemic circulation • explain how blood travels in pulmonary and systemic circulations • state the different blood groups • explain how blood is donated • name some circulatory disorders	• Let pupils draw a histogram using the pulse rates for the class. • Explain to the pupils that humans have double circulation and use the blackboard to explain double circulation with a sketch. • Describe the path of the blood in pulmonary and systemic circulation. • Explain how lymph circulates. • Ask pupils what happens to a small wound after bleeding stops. • Introduce the process of the blood clotting. • Ask pupils how many of them know their blood groups. • Find out if any of them have donated blood • Using a table on the blackboard, explain how blood is donated. • Ask pupils to name any blood disease that they know. • Explain anaemia and the effects of anaemia (how you feel)		and capillaries and submit their work. • Pupils draw a histogram of their class pulse rates • Pupils draw and label a diagram of the general circulation • Questions and answer session on general circulation. • Let pupils find out where the nearest blood bank is, and its day-to-day operations. • Oral questions on the names of respiratory disorders.
Community Health • Family and school health	**Students will be able to:**	• Start by asking pupils to define a community and an environment. • Discuss some of the things that we must consider when we talk of community health.	• Ministry of Health • Local Government	• Pupils find out about traditional health practices

• School health services	• define community and environmental health • state the role of traditional birth attendant in society • explain government measures to reduce maternal and child health • state the role of the school in providing health services	• What types of health services do people in remote areas use? • Talk about traditional healers and their role in their society. • Who are traditional birth attendants (TBAs) and what is their role. • What are some of the limitations of TBAs • Discuss some of the measures that the government has put in place for maternal and child health to reduce infant mortality. • Does your school have health services? • What types of health service should your school provide? • Who provides this health service? • Discuss school health services provided by the government	• Village Head • The school nurse where available	in the local area or village • Pupils find out the role of TBA's in antenatal and post-natal practices • Find out if there is a school health service and the services it provides
Environmental Health • Water supply • Waste disposal • Sewage disposal • Housing • Problems of environmental health • Pollution of: ○ Air ○ Water ○ Land • Public health agencies • Vital statistics	**Students will be able to:** • state the sources and methods of purification of water • state the method of refuse disposal • explain the problems of improper disposal of refuse • name some method of sewage disposal	• Ask pupils where they get their water supply from. • Let them name other supplies of water. • Ask them to state methods of water purification. • How is water purified on a large scale? • What is water used for in the home? • How is water used in the community • Have a general discussion on refuse disposal • What are the problems of refuse disposal in the country? • Are there areas where refuse is dumped in the locality? Name two such areas • Does the government or local council take part in refuse collection • How else can refuse be disposed of?	• Textbooks • Charts • Pictures • Resource persons from: ○ Guma Valley Water Company ○ Environment Protection Agency ○ City council or local council ○ Ministry of Lands and Housing	• Pupils find out how water is purified at the Guma Dam • Pupils find out how water is used to generate electricity at Bumbuna • Research: Go down to any of the dump sites to find out from the local people what problems that they face.

	• state the different types of housing.
	• explain the criteria for good housing
	• explain the causes of different types of pollution (air, water, land/ soil) and how they could be prevented or controlled.
	• state the effects of different types of pollution on humans, animals, and plants
	• state the functions of the public health agencies
	• understand the importance of collecting statistics (e.g., birth and death rate, causes of death, environmental data)
	• compare statistics of birth and deaths in between given periods and
		• What are the problems associated with improper disposal of refuse? Mention blocked drains and flooding.
		• Ask pupils how they disposal of sewage in their homes.
		• Talk about the different types of latrines and their advantages and disadvantages
		• Where is sewage emptied?
		• What problems does wrong disposal of sewage cause?
		• Ask pupils how they would define a house.
		• Ask them to name different types of houses.
		• Brainstorm the criteria for good housing with the pupils. Consider:
		  ○ Location
		  ○ Size of the building
		  ○ Type of walls floor and roof
		  ○ Ventilation and lighting
		  ○ The foundations
		  ○ Accessibility to school and health facilities, water supply.
		• Discuss pollution in the local area and what is causing it. What are communities doing about it? Write down key points on the blackboard.
		• Ask pupils to state some human activities that release substances into the air.
		• What types of substance are release into the air?
		• How do factories pollute the air?
		• How do individual's everyday activities pollute the air? E.g., vehicles, cooking, burning rubbish.
		• What pollutes the air during the harmattan?
		• Ask pupils to find out the causes of acid rain.
			○ Building contractor
			○ Ministry of Health
			○ UNICEF
			○ WHO
			○ Red Cross
			○ Office of NCDHR
			• Statistics of births and deaths from NCDHR
				• In groups, pupils identify the diseases and environmental problems associated with refuse and sewage disposal.
				• Pupils draw a typical mud house with thatch roof and state its advantages and disadvantages
				• In groups, pupils write down; how locations can make housing unsuitable
				• Explain how the quality of housing affects health.
				• Pupils write down the types of pollution in their area.
				• In groups pupils discuss the effect of air pollution.
				• Pupils find out the gases that pollute the air

	account for any differences.	• Consider noise as pollution. Ask who lives near a bar or club, for example. • Discuss methods of controlling air pollution, e.g., restricting bush fires, surfacing dusty roads etc. • Ask pupils to name some water bodies that are likely to be polluted. • What sort of pollutants are found in water bodies? E.g., oil and garbage. • Talk about drains and flooding. • What is the city council doing to minimize flooding? • How is Bumbuna contributing to air pollution? • Discuss the use of dynamite in inland water fishing. • How does water pollution affect humans, plant, and animal life. • Have a general discussion with the pupils about how water pollution can be controlled. Write their suggestions on the blackboard. • Ask pupils which of of them live near dump sites, farmland, stone quarries, mining areas, areas of cattle rearing, and ask pupils to talk about pollution in these areas. • What causes and effects of pollution in these areas • Have a general discussion with the pupils on land pollution. • Brainstorm to find out pupils' knowledge of public health agencies and guide them. • Ask them to state the functions of the Ministry of Health • Ask the pupils to find out the functions of WHO/ UNICEF and International Red Cross		• Explain what causes: • Acid rain • The green-house effect • Pupils discuss control of air pollution in groups. • Pupils discuss how water pollution can cause flooding. • Trip to Bumbuna • Questions and answers on effect of water pollution • Visit to a mining sites or dump site • Pupils find out from people living in one of these areas what problems they encounter • Write down five ways how the school help to minimize land pollution.

		• Discuss occupations where workers may face occupational hazards. • Ask pupils to find out policies/ regulations to safeguard the health of industrial workers? • Ask pupils which of them participated in the last population registration exercise. • Ask them to state which office is now responsible to collect birth and death records statistics • Discuss the importance of keeping health records. • Collect statistics of birth and death rates for the last five years, pupils plot these on a graph. Also calculate the birth and death rates. • Investigate how these statistics compare with earlier periods and consider reasons for any differences.		• Divide the class into four groups to research on the following and report ○ Function of the Ministry of Health ○ Work of WHO ○ Work of UNICEF ○ Work of the Red Cross • Collect statistics from NCDHR Birth rates (= total number of births divided by total population in an area per year) • Compare the number of people born over a five-year period, e.g., 2000-2014. Plot these on a graph or Histogram. • Do the same for the number of people who died during this period. • Consider how this data

				compares with previous periods and give possible reasons for any differences.
The Skeletal System and Muscles • The axial skeleton • The appendicular and types • Principle of levers • Structure and types of muscles • Movement of the arm • Posture and postural defects	• **Students will be able to:** • describe the bones of the axial skeleton and state their functions. • describe the bones of the appendicular skeleton and state their functions • state the functions of the skeleton • name the different types of joints • describe the structure of a moveable joint • state the three types of levers with examples • identify 1st, 2nd and 3rd class levers in the body • name the three types of muscles and give examples	• Brainstorm with pupils to find out the functions of the skeleton. Add what pupils do not come up with. • Use a model or a chart to describe the axial and appendicular skeleton. • Use examples of vertebrate and limb bones where available. • Explain what a joint is. Use the model of the skeleton to identify fixed and moveable joints and where they can be found. • Describe the structure of a moveable joint. • Explain what the term lever means • Explain the principles of 1st, 2nd, and 3rd class levers using a diagram (Give one example of each) • Explain that the arm act as a 3rd class lever, the head and neck acts as 1st while the feet and legs act as a 2nd class lever (on tip toe) • Ask pupils to find more examples 1st, 2nd, and 3rd class lever • Ask pupils to feel the muscles in their upper arm and thigh. Identify those as skeleton muscles • Ask pupils how many of them have seen the heart of a cow as it is sold in the market (cardiac muscles). Ask pupils to describe them. • Show them a small piece of cow gut intestine (visceral muscle). Ask pupils to describe them.	• A small piece of meat • A small piece of cow heart • A small piece of cow gut/ intestine • Pictures of different muscles • Different vertebrae and limb bones • Textbooks • Pictures • Resources from Society for the Disabled	• Pupils identify and draw the different vertebrae and limb bones. • Oral questions on types of joints and where they are found. • Pupils draw and label a moveable joint. • Pupils find examples of 1st ,2nd and 3rd class levers in everyday use. • Pupils draw and label a muscle fibre. • Pupils examine a piece of meat, cow heart, and a piece of cow intestine, and then comment on their features.

	• state the characteristics of the different types of muscles
	• explain how we bend and straighten the arm.
	• state the characteristics of correct posture
	• explain what is understood by a 'postural defect'.
	• explain the role of nutrition and health in developing correct posture
		• State the characteristics of various types of muscles.
		• Describe the structure of a muscle fibre.
		• Ask pupils to bend and straighten their arms and observe the shape of the muscles in the upper arm.
		• Talk about the origin and insertion of muscles in relation to movement
		• Explain 'posture'. Talk about the role of nutrition and exercise as determinants of correct posture.
		• Ask pupils to demonstrate the correct posture in
		  ○ sitting
		  ○ standing
		  ○ walking
		  ○ lifting
		• Ask pupils what they understand by postural defects.
		• Which parts of the body are affected by bad posture? Point out some bad body postures.
		• How can postural defects be corrected?
		• Ask the pupils to find out the causes of
		  ○ flatfoot
		  ○ scoliosis
		  ○ kyphosis
		  ○ lordosis
		  ○ other postural defects (e.g., accident, disease, poor nutrition)
				• Pupils demonstrate movement of the arm and identify the origin and insertion of muscles in relation to movement.
				• Discuss how postural defects affect the life of the people affected, e.g., appearance, position and functions of the organs.
				• Under supervision pupils practice correct sitting, standing, walking, and lifting positions.
				• Research the role of an orthopaedic hospital and physiotherapy unit in correcting postural defects.

				• Research the causes of ○ flatfoot ○ scoliosis ○ kyphosis ○ lordosis
First Aid • The First Aid kit • Accidents • Safety education • Disaster relief	**Students will be able to:** • explain the meaning of first aid • state the qualities of a First Aider • list the things that must be present in a First Aid kit • state some emergency conditions for which First Aid can be given • demonstrate knowledge of administrating First Aid • name organisations that can give First Aid • name types and causes of accidents	Start by asking pupils to state what they understand by First Aid. Explain the ABC of First Aid, i.e., checking Airway, Breathing, Circulation. • Discuss the qualities a first aider should possess? Who is the school First Aider? • Ask pupils to note the items that should be in their First Aid kit and write down what they should be used for. • Discuss each of these and demonstrate how they should be used in first aid. (e.g., for a cut or wound, bleeding, dislocation, fractures, burns, scalds, shocks, poisoning, etc). Let pupils work in pairs to repeat the demonstrations • Get pupils find the local emergency centre and/ or Red Cross office is. Let them find out about other organisations that can give first aid. • Ask pupils to name the types of accident that might occur in different places, e.g., home, school, roads, on the farm, workplaces. • Discuss possible causes of such accidents and suggest ways of preventing them. • Discuss disasters that have happened in Sierra Leone and how and why they happened. • Ask pupils about the work of the ONS in disaster relief. What other agencies are concerned with disaster relief.	• Textbooks • Pictures • Resource person from the Red Cross • First Aid kit • Note pads • Thermometer • Antiseptic • Swabs • Disposable gloves • Triangular • Other bandages • Scissors • Gauze pads • TV/ radio programmes • Documentary (internet) • Film strip • Resource person from ONS	• In groups, pupils write down the items that should be in a First Aid kit. • Pupils practice and demonstrate the use of items that should be in their First Aid kit • In pairs pupils practice giving first aid for: ○ wounds ○ bleeding ○ dislocations ○ shock • Research the First Aid and other work of the Red Cross • Pupils should find out about other organisations that can give First Aid

	• identify types of accidents in the home • state ways of preventing accidents • Discuss different types of disasters • name the Agencies responsible for disaster relief			• Pupils discuss accidents that might occur in school. • Questions and answers on ways to prevent accidents in different places. • Pupils find out about recent disasters that have occurred in the country • Name some of the agencies responsible for disaster relief
Excretion • The urinary system • The kidney • Urine formation in the kidney • The lungs and skin as excretory organs	**Students will be able to:** • define excretion • describe the urinary system • describe the structure of the kidney and list its functions • Explain how urine is formed in the kidney.	• Start by explaining excretion and the waste products of metabolism. • Ask pupils to name the excretory organs. • Ask them to state why we need to excrete waste products. • Using a model or chart describe the excretory system of humans. • Use a model of the kidney to describe its structure. • State the functions of the kidney. • Explain the terms ultrafiltration and selective reabsorption in urine formation. • Discuss what happens when the kidney can no longer function properly.	• Models (kidney, skin) • Chart • Picture • Textbooks • Dialysis Centre at Connaught Hospital	• Pupils examine the parts of the urinary system on the model • Pupils draw and label the excretory system • Draw and label parts of the kidney. • Draw and label the kidney tubule

	• describe the structure of the skin • state how the skin can carry out excretion. • explain why the lung is an excretory organ	• Tell the pupils that the lungs are excretory organs. • Ask pupils to state what the lunge excretes. • Use a model of the skin describe it structure. • Point out the parts of the structure that enable it to carry out excretion.		• Short answer questions on urine formation. • Questions and answers on the structure of the skin. • Pupils draw and label a section of the skin.
Physical Health • Body forms • Factors for maintenance of health • Personal hygiene • Homeostasis	**Students will be able to:** • recognize their body forms • state the factors for maintaining good health • explain the role of exercise in maintaining health • appreciate the need for good personal hygiene • explain how to take care of various parts of the body • define homeostasis • state why the process is	• Inform pupils that people are born with an inherited body form based on the skeletal frame and body composition ○ Ectomorph: long lean with little body fat and muscles ○ Mesomorph: athletic, lithe, strong ○ Endomorph: lots of body fat, lots of muscles, heavy and round • Sensitively, ask pupils to classify members in the class as ○ Ectomorph ○ Mesomorph ○ Endomorph • Ask the pupils to state some of the factors for maintaining health. Discuss with the pupils the following factors: ○ Diet - how diet affects health ○ Disease prevention - how can diseases be prevented? Talk about personal and environmental health (refer to previous topics) ○ Exercise - why is exercise necessary?	• Pictures • Charts • Textbooks • Internet • Litmus paper • Urine • Test tube • Medical Person	• Pupils try to identify different body forms in the class and classify members of the class. • Let the pupils suggest factors in maintaining health – diet, different forms of exercise, etc • Question and answer session round the class - assess pupils' responses. • Questions based on care of the body • Find out the role of the following in

	important in the body • name organs that carry out homeostasis • explain the role of nerves and hormones in homeostasis • explain how the kidneys maintain water and mineral salt content • state the role of the liver in regulating blood sugar • explain why it is important to have regular health checkups	○ Stress - how stress can affect health • Brainstorm to get pupils understanding of personal hygiene. • Discuss why we need to have personal hygiene. • Have a question-and-answer session covering ○ Care of the entire body ○ Care of the fingernails and toenails. ○ Care of the hand ○ Care of the towel and under wear ○ Care of clothing ○ Care of the teeth • Discuss the importance of rest and exercise • Define homeostasis and explain why homeostasis is important e.g., metabolic processes require constant internal environment and are controlled by enzymes • What are the variables that need to be maintained, e.g., body temperature, PH levels, blood Co_2 concentration, blood pressure, blood glucose concentration. • Do a simple test with litmus paper to test PH of urine. • Explain the role of the nerves and endocrine system in homeostasis, e.g., when the cells of the hypothalamus detect changes in temperature, impulses cause the arterioles in the skin to modify. • Explain how the kidney carries out homeostasis in maintaining water and mineral salt. • Explain how the liver maintains blood sugar levels. Which diseases are associated with blood sugar levels?		maintaining homeostasis: ○ Pancreas ○ Skin ○ Liver • Write up simple test with litmus paper to test PH of urine

		• Talk about negative and positive feedback control • Discuss why regular checkups are important to maintain health. • Discuss the impact of alcohol and smoking on health.		
Emotional and Mental health • Attributes of emotional health • Personality defence mechanisms • Metal illness	**Students will be able to:** • list the aspects of emotional health. • list some defence mechanisms in emotionally disturbed people • explain what mental illness means • state some of the causes of mental illness • suggest ways of preventing mental illness. • explain the medical terms neurosis and psychosis	• Ask the pupils to list some of the attributes of an emotionally stable person. What characteristics/ behaviours might we see in an emotionally unstable person? • Ask them to state some causes of mental illness, e.g., drug abuse, stress, heredity, and neglect. • How could mental illness be prevented? Write down pupil's suggestions, including the need to seek help and keep in contact with family and friends. • Ask pupils to find out about neurosis and psychosis.	• Pictures • Charts • Textbooks • Internet • Guidance counsellor • Resource person from Kissy Mental Hospital • Resource person - Mental Health Nurse	• Pupils make suggestions as to the characteristics of emotionally stable and unstable people. • Pupils research on more personality defence mechanisms • Field trip to a mental home (if allowed, requires careful preparation and respectful conduct) • Pupils research causes of mental illness • Pupils write down their suggestions for preventing mental health issues

				• Pupils should find out for homework about neurosis and psychosis

Chemical Substances that affect Behaviour
• Tobacco
• Impact of tobacco smoking
• Drugs
  ○ Types of drugs
• Alcohol
  ○ Effects of alcohol
	Students will be able to:
	• define a drug
	• name some useful drugs
	• name some harmful drugs
	• understand how drug abuse can be prevented
	• explain why tobacco smoking is dangerous
	• explain the effect of cigarette smoking on health
	• understand the components of cigarettes (what is in them)
	• name different types of alcohol
	• give reasons why people drink alcohol
	• understand the effects of alcohol
		• Discuss why people smoke.
		• Explain that tobacco contains a poisonous substance: nicotine. State the effect of nicotine on the heart and brain
		• Note also that cigarettes contain tar and produce carbon-monoxide.
		• Ask pupils to name some diseases associated with tobacco smoking.
		• Ask pupils how cigarette smoking can be controlled.
		• Discuss what pupils understand by a drug
		• Ask the pupils to name the drugs that school children take - useful drugs.
		• Discuss harmful drugs they should be aware of and to be avoided.
		• Ask them to state the effect of harmful drugs on people. Be clear on the meaning and dangers of addiction.
		• Discuss reasons why people take harmful drugs.
		• What is drug abuse and how can it be prevented?
		• Introduce alcohol as a drug (including its addictive properties). [Technically, it is a Central Nervous System depressant].
		• What types of alcoholic drinks do people drink?
		• Why do people drink?
		• How does it affect them in the home?
			• Textbooks
			• Internet
			• Resource people – doctor, psychiatric nurse.
			• Trip to the Kissy Mental Hospital
			• Pictures of types of alcohol.
				• Find out the effects of cigarette smoking, including on pregnant women and the unborn child.
				• Pupils find out the measures taken to control cigarette smoking by the government and others (commerce and industry?)
				• In groups, pupils list:
				○ Useful Drugs
				○ Harmful Drugs
				• Discuss how drug abuse can be prevented in young people and adults.

	on the drinker (physical, mental, social)	• How does alcohol affect the health of drinkers and their family (depression, mood swings, behavioural issues, impaired functions, liver and other diseases, financial issues)? • Ask pupils to suggest some methods of controlling alcohol intake and abuse.		• Class discussion on how alcohol affects the physical and mental health, and economic and social life of the drinker
Consumer Health • Consumer health products • Factors influencing choice of consumer products • Role of diagnostic and dispensing services	**Students will be able to:** • understand consumer health products • state some factors influencing the choice of consumer products • state the role of diagnostic and dispensing services • explain how a doctor or health care worker works • explain the danger of self-diagnosis	• Explain that consumers health products include non-prescription drugs and ask pupils to give some example of consumers' non-prescription drugs, e.g., pain killers, multivitamins and let them write these in their note book • Let them state some of the factors influencing the choice of consumers products, e.g., price, availability, expiry date, marketing. Ask pupils to find out some more. • Question and answer session: • Do you always go to a hospital of clinic when you are ill? • Do you ask other people who have had similar illness what drugs to take? • Where do you buy medicine? Is it from people who move around the street? • Why must you use a health centre or qualified pharmacist? • What step does a doctor or health care worker take before diagnosing? • What are the dangers of self-diagnosing?	• Textbooks • Internet • Resource person - pharmacist or doctor	• Orally, pupils name some non-prescription drugs • Pupils write down some factors affecting choice of consumer products • Explain the steps the doctor follows to diagnose patient.

The Nervous System • Structure and functions of the brain • Structure and functions of the spinal cord • The nerve cell - structure, functions, types • Voluntary and reflex actions • Disorders of the nervous system	**Students will be able to:** • describe the structure of the brain • explain the function of the brain • describe the spinal cord • explain the functions of the spinal cord • describe the structure of a nerve cell • state the functions of the three types of neurons • explain a voluntary action and a reflex action • give examples of voluntary and reflex actions • explain the differences between voluntary and reflex actions • explain the path of a reflex action • draw a reflex arc	• Start by stating the components of the nervous system and, using a model of the brain, describe its structure. • Explain the functions of the brain • Pupils draw and label the brain for homework. • Use a chart showing a section of the spinal cord to describe the spinal cord. • Explain what the functions of the spinal cord are. • Explain what nerves are. Name the types of nerves and the role they perform with the help of a diagram. • Describe a nerve cell or neuron. • How are the three types of nerves linked together? • Ask pupils to explain what they understand by voluntary and involuntary actions. • Do a demonstration of voluntary action, e.g., picking a book from the floor. • Now pass a feather close to the eye of a pupil and watch the eye blink as an example of a reflex action. • Explain the characteristics of voluntary and involuntary or reflex actions • Ask pupils to state the difference between the two. • Let pupils write down five voluntary and five involuntary actions in their books • Briefly explain conditioned reflex action • Draw a reflex arc and explain the path of a reflex action • Ask the pupils if they know of any disorders of the nervous system, e.g., cerebral palsy, epilepsy,	• Textbook • Pictures • Charts • Diagrams • Model of the brain • Resource person - a neurologist	• Pupils identify the parts of the brain on the model. • Pupils draw and label the brain. • Pupils draw and label a section of the spinal cord. • Pupils draw and label a nerve cell. • Practical: pupils demonstrate a knee jerk; withdrawal from a painful stimulus; tickle a friend • Pupils draw a reflex arc. • Pupils write down five voluntary and involuntary actions. • Pupils find out about nervous system disorders and bring their findings to class.

	• name some disorders of the nervous system	motor neurone disease, Parkinson's disease, Alzheimer's disease • Ask pupils to find out about these diseases.		

The Sense Organs
• Structure and functions of the eye
  ○ How images are formed in the eye
  ○ Defects of the eye
• Structure and functions of the ear
  ○ Auditory defects
• Structure and functions of the skin
• The tongue and nose as sensory organs
	Students will be able to:
	• describe the structure of the eye
	• state the functions of the different parts of the eye
	• explain long and short sightedness and how they can be corrected
	• describe the structure of the ear
	• state the functions of the ear
	• state some auditory defects
	• name the objects used in auditory screening
	• state the functions of the skin
	• describe the structure of the skin
	• explain how we perceive smell
		• Using the model of the eye, describe the structure of the eye.
		• State the functions of the parts of the eye.
		• Explain how we can see with the eye.
		• Look around the class find out if any pupils are wearing glasses. Find out if they are long or short sighted.
		• Explain long and short sightedness with the use of diagrams. Discuss how can they be corrected.
		• Let pupils draw diagrams of long- and short-sighted eyes and explain how they can be corrected.
		• Ask pupils to find out about:
		  ○ Hypermetropia
		  ○ Astigmatism
		  ○ Presbyopia
		  ○ Squint
		• Use the model of the ear to describe the structure of the ear. Explain how we are able to hear
		• Ask the pupils to state a function of the ear apart from hearing.
		• Ask the pupils to find out about Conducting Impairment and Neurosensory Impairment.
		• Talk about use of guitar strings, tuning fork to do auditory screening.
		• Find out about the use of sign language
		• Ask the pupils to state some of the functions of the skin.
			• Textbook
			• Diagrams
			• Charts
			• Model of the eye
			• Snellen chart (for vision screening)
			• Model of the ear
			• Tuning fork
			• Watch
			• Guitar strings
			• Model of the skin
			• Resource persons from organisations dealing with sensory issues
			• Salt
			• Sugar
			• Lime
			• Unsweetened chocolate/ cocoa (baking chocolate), or
				• Ask pupils to draw and label the eye.
				• Pupils draw diagrams of long and short sightedness and their corrections.
				• Pupils, find out about hypermetropia, astigmatism, presbyopia, and squint.
				• Pupils use the Snellen chart to test their eyesight.
				• Pupils draw and label the ear.
				• Pupils use a ticking watch to test their hearing by holding it near to, and then further away from their ears.
				• Pupils find out the meaning of Conductive

	• state where the taste buds are found in the tongue • name the chemical tastes	• Using the model, describe the structure of the skin. • Let the pupils observe the structures which make the skin a sense organ. Explain what the skin responds to. • Ask pupils to draw and label the skin. • Ask pupils to find out about some skin disorders. • Ask pupils to feel the inside of their nose, what do you observe. • Explain to the pupils that sensory nerve ending in the nose detect smell • Explain how we perceive smell • Name the four tastes the tongue can detect (salty, sweet, sour, bitter). • Pupils demonstrate this with salt, sugar, lime, unsweetened (i.e., bitter) chocolate or cocoa • Discuss with class and then show on a diagram the different parts of the tongue where each is detected.	something bitter.	Impairment and Neurosensory impairment. • Pupils draw and label the skin. • Pupils find out examples of skin disorders. • Pupils find out what may affect our sense of smell and tase • Practical: Pupils find out which part of the tongue can detect different tastes
The Endocrine System • The endocrine organs and their secretions • Functions of the various hormones	**Students will be able to:** • state the location of the endocrine glands • name their secretions • explain the functions of the various secretions	• Start by talking about long term charges in the body, i.e., growth. • Talk about the function of the endocrine system. • Name the endocrine glands, their locations, and secretions. • Explain the functions of the various hormones. • Ask pupils to find out what happens to over-secretion or under-secretion of these hormones.	• Chart • Pictures • Model of the brain • Model of the kidney • Human model with the visceral cavity	• Pupils identify the endocrine glands on the models. • Pupils find out what happens when the hormones are over-secreted or under-secreted.

The Reproductive System • The female reproductive system • The male reproductive system • Secondary sexual characteristics • Conception, pregnancy, foetal development, and birth • Disorders of the reproductive system • Family life and sex education	**Students will be able to:** • describe the female reproductive system of a mammal • list the functions of the various parts • describe the male reproductive system • state differences between the male and female reproductive system, • explain how the penis is adapted to carry out its functions. • list the secondary sexual characteristics in boys and girls • explain why these changes are necessary • explain the menstrual cycle • explain how fertilisation occurs	• Use a diagram of the female reproductive system to describe it. • Ask pupils to state the functions of the following parts: ○ ovaries ○ uterus or womb ○ fallopian tube ○ urethra • Ask the pupils to state how the structure of the womb is adapted to carry the baby. • Ask pupils to draw and label the female reproductive system from the blackboard. • Using a model or chart, describe the male reproductive system. • Explain why the testes are found outside the body. • Pupils must know the function of the following: ○ epididymis ○ Vas Deferens ○ glands which open into the urethra • Ask them to write some differences between the male and female reproductive organs • Discuss how the penis is adapted to carry out its functions. • All the pupils are adolescents, ask them to describe the adolescent changes that have taken place in their bodies. • Ask them why it is necessary to undergo these changes. • List these changes on the blackboard and allow the pupils to copy them. • Ask them about behavioural changes as well. • Introduce the monthly menstrual cycle in girls.	• Textbooks • Models • Charts • Pictures • Internet • Resource person: qualified Midwife • Research person from Planned Parenthood Association • School guidance counsellor	• Do an annotated diagram of the female reproductive system • Short answer, structured questions • Pupils identify the part of the male reproductive • Question and answer session on the functions of the various parts. • Pupils write down differences between the male and female reproductive system. • Oral: pupils respond to questions posed by the teacher on the topics • Experience sharing: ○ Girls: introduce and explain the topic and

	• explain what happens during the development of the of the foetus explain how the foetus is protected in the womb
	• describe the process of birth
	• name some reproductive disorders
	• explain artificial insemination and test-tube babies
	• explain the meaning of sex education
	• state how it affects family life
		• Explain what happens that she becomes pregnant.
		• Describe the male and female gametes
		• Explain how fertilisation takes place.
		• In what part of the female reproductive system does fertilisation occur?
		• Discuss/ explain these points:
		  ○ Where the body develops
		  ○ What the first process that the zygote undergoes is
		  ○ How the zygote gets its food
		  ○ How the foetus is protected in the womb
		  ○ How long it takes for the foetus to develop
		  ○ Changes that take place in the womb during birth
		  ○ Why these changes are necessary
		  ○ Explain the afterbirth
		  ○ Why antenatal and postnatal care are necessary
		• Let pupils talk about parental care
		• Explain what reproductive disorders are
		• Ask pupils to find out some reproductive disorders, e.g., sexual dysfunction in males and females, premature ejaculation, cancer of the womb, prostate cancer, and others
		• Explain artificial insemination and test-tube babies
		• Ask the pupils what sex education should include, e.g., reproductive health, use of contraceptives, puberty, gender, pregnancy
		• Consider how sex education can impact family life, e.g., better family planning
		• Let pupils name different types of contraceptives and make sure they are aware of all available
				sensitively encourage them to share their experiences during their period.
				○ Boys: introduce and explain the topic and sensitively encourage them to share their experiences of wet dreams. [these sessions could be done with boys and girls separately, if at all].
				• Pupils find out the names and functions of the membranes and fluids which protect the foetus.
				• Visit to an antenatal and postnatal clinic
				• Research: pupils find out more about

		and how they can be accessed. (Note that abstinence from sex is an option). • Discuss the advantages and any issues with breast feeding, and the alternatives if breast feeding is not possible.		reproductive disorders • Pupils find out how artificial insemination is done, and about 'test-tube-babies'. • Discussion: Should sex education be taught at home or school?

Factors necessary for communicable disease to occur
• Terms used
• Causative agents and carriers of disease
• How communicable disease spread
• Principle of prevention and control of communicable disease
	Students will be able to:
	• define the terms endemic, epidemic, and pandemic
	• explain how communicable diseases spread
	• name causative agents of communicable diseases
	• name carriers of causative agents
	• explain methods of preventing or controlling communicable diseases
		• Ask pupils what a communicable disease is?
		• Define the following in relation to communicable diseases:
		  ○ Endemic
		  ○ Epidemic
		  ○ Pandemic
		• From the definitions, ask pupils to give examples of endemic diseases (e.g., malaria), epidemic diseases (e.g., Ebola), pandemic (e.g., COVID-19)
		• Explain how communicable diseases can be transmitted, e.g., droplets, airborne, food, water, sexual intercourse. Encourage the pupils to come up with the answers.
		• Ask the pupils what the causative agents of disease are, e.g., bacteria, viruses. Let pupils name some more.
		• Explain that these organisms need a host and sometime a carrier/ vector.
		• Ask pupils to name some carriers of diseases.
			• Textbooks
			• Internet
			• Pictures
			• Charts
				• Pupils find out other examples of endemic, epidemic, and pandemic diseases
				• Pupils write down ways communicable diseases spread.
				• Pupils name some carriers of disease organisms
				• Pupils find out other ways of controlling disease

		• Discuss methods of prevention and control of diseases, including: ○ use of disinfectant ○ use of antibiotics ○ control of vectors ○ isolation ○ sterilization ○ immunization		
Classification of Communicable Disease • Causes, Symptoms, Prevention/ Control of: ○ Airborne diseases ▪ Whooping cough ▪ Poliomyelitis ▪ Tuberculosis ○ Waterborne diseases ▪ Dysentery ▪ Cholera ▪ Typhoid ▪ Schisto-somiasis ○ Insect borne diseases ▪ Malaria ▪ Yellow fever	**Students will be able to:** • name some airborne diseases and state their mode of transmission, symptoms, means of prevention and control. • name water borne diseases and state their mode of transmission, symptoms, means of prevention and control. • name insect borne diseases • describe the life cycle of the vectors • name some worm infestations	• Classify communicable disease as airborne, water/food borne, and insect borne • Pupils divide their exercise books into five columns and head each column as: ○ 1st column - name of disease ○ 2nd column - causative agent ○ 3rd column - mode of transmission ○ 4th column - signs and symptoms ○ 5th column - prevention and control • Discuss the following airborne diseases as per column headings and complete the chart: ○ common cold ○ measles ○ whooping cough ○ poliomyelitis ○ tuberculosis ○ meningitis • Using the same format in the pupils' books as above, discuss the following waterborne diseases as per column headings and complete the chart: ○ dysentery ○ cholera ○ typhoid ○ schistosomiasis	• Textbook • Pictures • Charts • Internet	• Question and answer session on individual types and examples of diseases. • Let pupils state the ones that children and adults can be vaccinated against. • Pupils research the different types and examples of diseases.

▪ Trypanosomiasis ○ Contagious diseases ▪ Gonorrhoea ▪ Syphilis ▪ Athletes foot ▪ Ringworm ▪ Leprosy ▪ Scabies ○ Worm infestations ▪ Roundworm ▪ Tape worm ▪ Hookworm ▪ Guinea worm ○ Non-communicable diseases ▪ Tetanus ▪ Diabetes ▪ Sickle Cell ○ Animal borne disease ▪ Rabies	• describe the life cycle of the worm • state the cause of rabies • explain the symptoms • name some contact diseases • state their state their causes, mode of transmission, symptoms, means of prevention and control. • name some non-communicable disease • state the causes and symptoms of tetanus, diabetes, sickle cell • name some non-communicable diseases • state the causes and symptoms of tetanus, diabetes, sickle cell	(Ask pupils to research them before the lesson). • Describe the life cycle of the parasite for: ○ malaria ○ yellow fever ○ trypanosomiasis ○ filariasis (Ask pupils to research them before the lesson). • Discuss the causes, symptoms, and prevention/ control of: ○ gonorrhoea ○ syphilis ○ athlete's foot ○ ringworm ○ leprosy ○ scabies ○ HIV (Ask pupils to research them before the lesson). • Describe the life cycles of: ○ roundworm ○ tapeworm ○ hookworm ○ Guinea worm (Ask pupils to research them before the lesson). • Describe the causes and symptoms of: ○ tetanus, ○ diabetes, ○ sickle cell ○ anaemia • Ask pupils if they have seen a dog with rabies and describe the symptoms. Explain how rabies is transmitted, and steps to take if bitten.		