

ST MAARTEN ACADEMY

DEPARTMENT OF SCIENCE

BIOLOGY YEAR PLAN

CHRISTMAS TERM

FORM 5

2020/2021

Text – Atwaroo-Ali Linda (First published 2003) CXC Biology Macmillian publishers limited

Karen Morrison, Peta-Gay Kirby ,Lucy Madhosingh (2008, 2014) Biology for CSEC published by Nelson Thornes Ltd

Linda Atwaroo-Ali Biology for CSEC Examinations (3rd Edition)

WEEK	TOPIC	OBJECTIVES	ACTIVITIES	ASSESSMENTS
1 - 5	<u>IRRITABILITY</u> -Define stimulus and response. -green plants response to light and gravity. -Invertebrates response to variation to light intensities, temperature and moisture. - Define receptors and effectors. -importance of stimuli. -relationship between	-Define a 'stimulus' and a 'response' -Describe the response of ; Green plants to unilateral stimuli of light and gravity as observed in roots and stems. Invertebrates such as woodlice to variations in light intensities, temperature and moisture. -Define receptors and effectors;	- <u>SBA PRACTICALS</u> -Reaction time -sensitivity of tongue to taste - Phototropism: measurement of growth of a plant of a plant over two weeks Reaction to hot objects, insect	-Quiz In class test

	<p>receptors, effectors and the central nervous system.</p> <ul style="list-style-type: none"> -coordination function of the brain and spinal cord. -roles of sensory and motor neurons. -cranial and spinal reflex eg; the pupil reflex; the knee jerk reflex. -functions of the cerebellum, cerebrum, and medulla. - role of the medulla in controlling the heart and breathing rates. -Human eye -functions -sights defects and corrections, long and short sightedness. -use of corrective lenses; glaucoma. - Function of the human skin. -location of the endocrine glands in human. -role of hormones of the pancreas and adrenals. -functions of selected substances in controlling growth and development in living organisms, eg; plant auxins; 	<ul style="list-style-type: none"> -Explain the relationship between receptors, effectors and the central nervous system and the coordinating function of the brain and spinal cord and roles of sensory and motor neurons. -Distinguish between a cranial and spinal reflex eg; the pupil reflex; the knee jerk reflex; use flow diagrams to show the pathway that an impulse travels in a reflex. -Describe the functions of the cerebellum, cerebrum, and medulla and the role of the medulla in controlling the heart and breathing rates. -Identify the main sense organs and the stimuli to which they respond. -Relate the structure of the human eye to its functions as a sense organ; (dissection and examination of an animal's eye. -Explain sight defects and their 	<p>bites</p>	
--	--	---	--------------	--

	<p>hormones secreted by glands of the pituitary, thyroid and gonads.</p>	<p>corrections eg; long and short sightedness; use of corrective lenses; glaucoma.</p> <p>-Describe the function of the human skin in temperature control as an example of homeostasis.</p> <p>-Recall the location of these endocrine glands in humans; the thyroid; pancreas, adrenals, gonads , pituitary.</p> <p>-Describe the role of the hormones of the pancreas and adrenals.</p> <p>- Perform and make deductions from simple investigations designed to demonstrate growth in living organisms.</p> <p>-state the functions of selected substances in controlling growth and development in living organisms e.g ; plant auxins; hormones secreted by glands of the pituitary, thyroid and gonads.</p>		
6 - 8	<u>MOVEMENT</u>	-distinguish between growth	Germinate peanuts or kidney	Quiz In class test

<p>9 - 14</p>	<p>-Skeleton - function of -importance -</p> <p>-</p> <p><u>GROWTH</u></p>	<p>movements in plants and movements in animals;</p> <p>-Relate the structure of the skeleton to it's functions in humans. -discuss the importance of locomotion in animals.</p> <p>-describe the mechanism of movement in a human fore limb</p> <p>-make deductions from simple investigations designed to demonstrate growth in living organisms</p> <p>-describe the structure of a dicotyledonous seed;</p> <p>-describe the processes taking place within a seed during germination.</p>	<p>beans or any appropriate seeds</p> <p>Examine a human skeleton</p> <p>-Draw and label a simple diagram of a long bone of a fore limb</p> <p>Simple line drawing to show the relationships.</p> <p>Investigate patterns of growth Draw and interpret graphs (growth curves histograms) from given data.</p> <p>Draw, label and annotate the external and internal structures of a seed.</p> <p>Use food tests to compare the food substances found in cotyledons before and after germination.</p>	<p>SBA report on germination</p> <p>Drawing</p> <p>Drawing</p> <p>Sba report</p> <p>Drawings</p>
---------------	--	---	--	--

	<u>END OF TERM</u> <u>EXAM</u>			

--	--	--	--	--

15				
----	--	--	--	--

ST MAARTEN ACADEMY

DEPARTMENT OF SCIENCE

BIOLOGY YEAR PLAN

EASTER TERM

FORM 5

2020/2021

Text – Atwaroo-Ali Linda (First published 2003) CXC Biology Macmillian publishers limited

Karen Morrison, Peta-Gay Kirby, Lucy Madhosingh and David Applin (published in 2014 by Nelson Thornes Ltd) **Biology for CSEC (2nd Edition)**

Linda Atwaroo-Ali **Biology for CSEC Examinations (3rd Edition)**

WEEK	TOPIC	OBJECTIVES	ACTIVITIES	ASSESSMENTS
1 – 5	<u>ENVIRONMENT AND HUMAN ACTIVITIES</u> -(i) physical and biotic factors, -(ii) environment and habitat, -(iii) population and community. -discuss the importance of the	-Environment- physical and biotic factors. Habitat-type of place where a particular organism is found. Population- single species within a particular habitat. Community- variety of species in a particular habitat. -consider terrestrial and	-investigate different soils- constituents, air, water-holding capacity, humus.	Quiz Test

6 – 8	<p>physical environment to living organisms;</p> <p>-Carry out a simple ecological study;</p> <p>-choose the most appropriate sampling methods for a particular study;</p> <p><u>NATURAL RESOURCES AND THEIR LIMITS</u></p> <p>Discuss the factors that affect the growth of natural population;</p> <p>-illustrate using examples that human populations are subject to the same constraints as other natural</p>	<p>aquatic habitats; importance of soil in providing water mineral nutrients and oxygen, importance of air in providing various raw materials, oxygen, carbon dioxide, nitrogen; role of micro organisms.</p> <p>-Habitats may include a tree, wall, or small pond.</p> <p>-consider the use of quadrats, transects bottles, jars, nets.</p> <p>-include competition for food and space; effects of disease pests, natural disasters.</p> <p>-effects of population growth on food, resources, prevalence of disease.</p>	<p>-use quadrats to integrate the distribution of species in a particular habitat; Estimate the density of a particular species.</p> <p>-research projects information, data collection and analysis.</p>	<p>Quiz Test</p>
-------	--	---	---	------------------

<p>9 - 13</p>	<p>populations;</p> <p>Describe various resources and their limits -discuss the importance of the difficulties encountered in recycling manufactured materials;</p> <p><u>THE EFFECTS OF MAN'S ACTIVITIES ON THE ENVIRONMENT</u></p> <p>-discuss the negative impact of human activity on the environment;</p> <p>-discuss the implications of pollution of marine and wetland environments; -discuss means by which</p>	<p>-energy and mineral resources.</p> <p>-Consider biodegradable and non-biodegradable materials, collection, transport and storage; note economic factors.</p> <p>-consider pollution by agricultural practice such as use of chemical fertilizers; products of industrialization and improper garbage disposal. -refer specifically to impact on small island states.</p> <p>-consider effects of the change in practices example use of natural fertilizers in</p>	<p>Research projects information, data collection and analysis.</p>	<p>Quiz Test.</p>
---------------	--	---	---	-------------------

	environment could be conserved; and restored.	agriculture; conservation methods; education ;monit ring strategies.		
--	---	---	--	--

ST MAARTEN ACADEMY

DEPARTMENT OF SCIENCE

HUMAN AND SOCIAL BIOLOGY YEAR PLAN

EASTER TERM

5th FORM

2020/2021

Richard Fosbery, Peter Givens, Pamela Hunte, Mark Morris, Angela

Ramjit-Delochan HUMAN AND SOCIAL BIOLOGY FOR CSEC

2nd Edition

WEEK	TOPIC	OBJECTIVES	ACTIVITIES	ASSESSMENTS
1 – 6	<u>DISEASE AND ITS IMPACT ON HUMANS</u> -Definition of good health and disease; -WHO definition which relates to physical, mental and social well being and not just the absence of disease. -classify diseases -Communicable (infectious diseases) and non communicable diseases (chronic or degenerative disease,	-Define the terms good health and disease; -classify diseases; -differentiate between the terms signs and	Given project on diseases. Students do an oral presentation on the different diseases that they research on.	Quizz In class test Oral presentations

	<p>nutritional deficiency disease, inherited disorders) -signs and symptoms; -primary symptoms and possible treatment of asthma; -how asthma affects the respiratory tract; -causes, signs/symptoms, treatment modality and prevention of chronic/lifestyle related diseases; a) Obesity, diabetes mellitus (type 1 and type 11) and cardiovascular disease (hypertension and coronary heart disease). b) Diabetes mellitus (type 11) and secondary hypertension as complications of obesity. c) The importance of diet and exercise. - the causative agent, signs, symptoms, prevention and control of infectious diseases; -Acute respiratory infection (influenza,</p>	<p>symptoms; -state the main causes, primary symptoms and possible treatment of asthma; -explain how asthma affects the respiratory tract; -Discuss the causes, signs/symptoms, treatment modality and prevention of chronic/lifestyle related diseases; Discuss the causative agent, signs, symptoms, prevention and control of infectious diseases; -discuss the cause, symptoms, mode of action, prevention and control of HIV/AIDS. -describe the effects of sexually transmitted infection(STIs) on the pregnant mother and the</p>		<p>Quiz , test ,</p>
--	---	--	--	----------------------

	<p>bronchitis, pneumonia), sexually transmitted infections (STIs) (gonorrhoea or syphilis, herpes), ringworm, typhoid, tuberculosis, cholera, gastroenteritis.</p> <p>-Cause, symptoms, mode of action, prevention and control of HIV/AIDS.</p> <p>-Include method of transmission, methods of limiting spread/prevention and possible treatment of HIV/AIDS (anti-retroviral drug – side effects).</p> <p>-effects of sexually transmitted infections (STIs) on the pregnant mother and the foetus.</p> <p>-impact of diseases on the human population;</p> <p>-Socio-economic implications, analysis and interpretation of data.</p> <p>-the effects of malaria and dengue (strain 1-1V) on the human body;</p>	<p>foetus;</p> <p>-discuss the impact of diseases on the human population.</p> <p>-discuss the effects of malaria and dengue (strain 1-1V) on the human body;</p> <p>-Explain the effect of vectors on human health;</p> <p>-Describe the life cycle of the mosquito and housefly;</p> <p>-explain the importance and the methods of controlling vectors which affect human health;</p> <p>-explain the methods used to control the growth of microorganisms;</p>		
--	---	---	--	--

	<p>-signs and symptoms, causative agent, method of transmission, prevention/control and treatment.</p> <p>-the effect of vectors on human health;</p> <p>-definition of vectors: rats, mosquitoes, houseflies. Include mode of action.</p> <p>-the life cycle of the mosquito and housefly;</p> <p>-Diagrams required.</p> <p>-the importance and methods of controlling vectors which affect human health;</p> <p>-spread of communicable fatal diseases, leptospirosis, dengue fever, gastroenteritis.</p> <p>-how and why personal hygiene is maintained;</p> <p>-Elimination of body odours, social acceptance; prevention of infections; prevention of dental carries. Include male circumcism. Care of genitalia.</p> <p>-methods used to control the growth of microorganisms;</p>	<p>-distinguish between disinfectants and antiseptics;</p> <p>-explain the use of common antibiotics and antifungal agents;</p> <p>-explain types of immunity; Distinguish between immunity and immunization; vaccine and vaccinations;</p> <p>-discuss the use and misuse of drugs;</p> <p>-explain the social effects of drug misuse on the individual, family and community;</p> <p>-use tables, graphs and charts to represent data on disease and its impact on human beings.</p>		
--	---	--	--	--

	<p>a) Definition of the term sterilization (ultra high temperature, pasteurization, autoclaving, boiling, canning).</p> <p>b) Effects of high temperatures, disinfectants and antiseptics in the control of microorganisms.</p> <p>c) Disinfection- use of chemical agents (chlorine, disinfectants, antiseptics).</p> <ul style="list-style-type: none">-Differences between disinfectants and antiseptics;-use of common antibiotics and antifungal agents;-Definition of antibiotics. <p>Antigen, antibody, anti-toxin.</p> <ul style="list-style-type: none">-types of immunity;-difference between immunity and immunization;vaccine and vaccinations;-Artificial, active and passive, natural passive, acquired.-use and misuse of drugs;-Include dependence;prescription (sedatives, pain killers and antibiotics); Non			
--	---	--	--	--

	<p>prescription (cocaine, LSD, heroin, ecstasy, alcohol, marijuana; physiological and psychological effects.</p> <p>-social effects of drug misuse on the individual, family and community;</p> <p>-Analysis and interpretation of data.</p> <p>-use tables, graphs and charts to represent data on disease and its impact on human beings.</p>			
7 -14	<p><u>THE IMPACT OF HEALTH PRACTICES ON THE ENVIRONMENT</u></p> <p>-Pollutants in the environment;</p> <p>-definition of pollution and pollutant; including domestic, industrial and agricultural pollutants.</p> <p>-causes of water and air pollution;</p> <p>-effects of pollutants on human beings and the environment;</p> <p>-methods of controlling pollution;</p> <p>-the water cycle</p>	<p>-identify pollutants in the environment;</p> <p>-discuss the causes of water and air pollution;</p> <p>-describe the effects of pollutants on human beings and the environment;</p> <p>-explain the methods of</p>	<p>.</p> <p>Collect pictures to show the different types of pollutions.</p> <p>Field trip to observe pollution around the island.</p>	<p>Quizz</p> <p>In class test</p> <p>Field trip reports.</p>

	<ul style="list-style-type: none"> -diagrams required; include evaporation, condensation, transpiration, respiration, filtration. -ways of purifying water in the home; -boiling, chlorine/bleach -test water for bacteria using Agar plate. -processes involved in large scale water purification; -impact on human activities on water supplies. -Why contaminated water is detrimental to human beings; Differentiate between proper and improper sewage disposal practices; -impact of improper sewage disposal practices; -treatment of sewage by biological filter and activated sludge methods; -include the role of microorganisms in the treatment of sewage. -parts of a pit latrine to their functions; -Diagram required 	<ul style="list-style-type: none"> controlling pollution; -describe the water cycle; -describe simple ways of purifying water in the home; -test water for bacteria. -describe the processes involved in large scale water purification; -discuss the impact of human activities on water supplies; -Explain why contaminated water is detrimental to human beings; -distinguish between proper and improper sewage disposal practices; -explain the impact on improper sewage disposal practices; -compare the treatment of sewage by biological filter and activated sludge methods; -relate the parts of a pit latrine to their functions; 	<p>Test water samples for bacteria.</p> <p>Students will view videos based on the following areas specified.</p>	
--	---	--	--	--

	<ul style="list-style-type: none"> -Why the siting of pit latrines is important. -sandy soil, vicinity to water sources. -the use of pit latrines in the Caribbean -advantages, disadvantages, phasing out. -efficiency of the methods of domestic refuse disposal; -analysis and interpretation of data. -the operations at a landfill; -Include a description of a landfill. -the importance of landfills in the Caribbean; -function of landfill -the impact of solid waste on the environment; -analysis and interpretation of data. -measures used to control solid waste volume; -reduce, reuse and recycle, examples of recyclable materials. -difference between biodegradable and non-biodegradable; -Include classification of biodegradable and 	<ul style="list-style-type: none"> -explain why the siting of pit latrine is important; -assess the use of pit latrines in the Caribbean. -evaluate the efficiency of the methods of domestic refuse disposal; -describe the operations at a landfill; -discuss the importance of landfills in the Caribbean; -evaluate the impact of solid waste on the environment. -analyse measures used to control solid waste volume; -distinguish between the terms biodegradable and non-biodegradable; 	-	
--	--	---	---	--

	<p>non-biodegradable items.</p> <p>-use tables, charts and graphs to represent data on the impact of health practices on the environment.</p>	<p>-use tables, charts and graphs to represent data on the impact of health practices on the environment.</p>		
--	---	---	--	--