

ST. MARY'S COLLEGE

CAPE BIOLOGY UNIT 2

Course Outline

Term 1

Unit/ Section	Topic	Modules	Week
01	Photosynthesis	:01-Structure of dicotyledonous leaf	1-2
		<i>Plan Diagram of a dicotyledonous Leaf T. S</i>	
		:02- photophosphorylation	
		:03- Calvin Cycle	
		:04- limiting factors of photosynthesis	
		<i>Photosynthesis: Separation of pigments using Chromatography (SBA:M&M)</i>	
		<i>Plan and Design: Photosynthesis (SBA:P&D)</i>	
02	Respiration and energy release	:01- breakdown of glucose in cellular respiration	3-4
		:02- Glycolysis	
		:03- structure and function of the mitochondria	
		:04- precursor of Krebs cycle /Krebs cycle process	
		:05-oxidative phosphorylation	
		<i>Respiration: The effect of exercise on breathing rate (SBA:A&I)</i>	
03	Anaerobic respiration	:01- comparison of aerobic and anaerobic respiration	5
		:02- significance of lactate formation and ethanol production	
		<i>Respiration: the use of the simple respirometer to determine respiration rates in beans (SBA:ORR, M&M)</i>	
04	Ecological Systems	:01-abiotic and biotic factors in an environment	6
		:02- distinguish between ecosystem , habitat and ecological niche	
		:03- investigative methods for studying ecological systems	
05	Energy Flow and Nutrient Cycling	:01- energy flow in system and energy transfer in trophic levels	7

		:02- biological pyramids	
		:03-species diversity	
		:04- carbon and nitrogen cycle	
		:05- importance of the ecosystem being self sustaining	
		<i>Plan and Design : Plant Growth (SBA: P&D)</i>	
06	Transport in plants	:01- uptake of ions in the roots	8
		<i>Transverse section of root</i>	
		:02- uptake and movement of water in the plant	
		<i>Electron micrograph of a xerophytes leaf</i>	
		:03- structure and function of Xylem	
		<i>Drawing of L.S of Xylem tissue</i>	
		:04- factors affecting transpiration rate	
		<i>Transpiration: transpiration rates in plants (SBA: A&I)</i>	
		:05- structure of sieve tubes and companion cells	
		<i>Electron micrograph of phloem</i>	
		:06 – phloem loading	
		:07-mass flow hypothesis	

Term1 continued

Unit/ Section	Topic	Modules	Week
07	Circulatory System in man	:01- structure and function of arteries, veins and capillaries	9-10
		<i>-Plan diagram of the mammalian vein</i>	
		<i>-Plan diagram of the mammalian artery</i>	
		:02- structure of heart and the cardiac cycle	
		<i>Longitudinal section of the mammalian heart (SBA:DRAW)</i>	
		:03- initiation and control of heart action	
		:04-blood pressure and pulse	

		<i>Transport: the effect of exercise on pulse rate (SBA:ORR)</i>	
		:05- haemoglobin and oxygen uptake	
		:06- interpretation of oxygen dissociation curves/ Bohr effect	
		<i>Drawing of Red blood cells</i>	
			11-12
08	Homeostasis Osmoregulation	:01- homeostasis defined	
		:02- homeostasis in the liver	
		:03- nitrogenous waste products and their removal	
		:04- structure and function of kidney	
		<i>-Plan diagram of kidney (DRAW)</i>	
		<i>-Plan diagram of kidney tissue (nephron sections)</i>	
		:05- removal of waste by the kidney	
		:06- clinical significance of glucose and protein in urine	

Term 2

Unit/ Section	Topic	Modules	Week
01	Nervous co-ordination	:01- structure of motor and sensory neurones	1-2
		:02- resting potential	
		:03- nerve transmission and action potential	
		:04- synaptic transmission	
		:05- role of synapses	
02	Hormonal control	:01- general principles of hormonal control	3
		:02- blood glucose regulation	
		:03- co-ordinating systems- nervous and endocrine	
		:04- plant regulator- ethene	

Term 2 Continued

Unit/ Section	Topic	Modules	Week
03	Immunology	:01- immune response- cell mediated and humoral	4-5
		:02- action of phagocytosis	
		:03- structure and function of antibodies	
		:04- uses of monoclonal antibodies in diagnosis and treatment	
		:05- passive and active immunity	
		:06- Vaccination	
04	Social and preventative medicine	:01-importance of a balanced diet , obesity and diabetes	6-7
		:02- diseases associated with the heart	
		:03- relevance of physical fitness	
		Plan and Design: Health and exercise	
		:04- mechanisms for the spread of viral diseases	
		:05- causes of either AIDS or Dengue and its impact worldwide	
		:06- preventative factors in controlling diseases worldwide	
		:07- impact of communicable and non-communicable diseases	
		:08- Drug abuse	8-9
		:09-define between psychological and physical dependence on drugs	
		:10- effects of alcoholism on the body and society	
		:12- effects of cigarette smoking on respiratory and circulatory systems	