



FOR BIOLOGY 5090 SCHEME OF WORK

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GRADE 10 TERM 1

WEEK & DATE	TOPIC	SUB TOPIC	EXPECTED OUT COME	METHOD	SUGGESTED EXPERIMENT	REFERENCE
WEEK 1	Living Organisms and life processes	Characteristics of living organisms	-Describe the characteristics of living organisms. -Distinguish between living organisms and non-living things. -Describe life processes of living organisms.	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 2	Cell structure and organization	Microscopes	-Demonstrate the correct use of a light microscope -Prepare and examine specimen using a microscope -Calculate magnification of specimen.	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 3		Cells as basic units of living organisms	-Investigate the structure of cells and functions of the organelles -Distinguish between a plant and animal cell structure. -Relate cell structure to functions. Refer to Nerve cells, blood cells, muscle cells and Plants root hair cells, spongy cells, phloem cells and xylem cells and their functions.	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket

WEEK 4		Cell Organization	<ul style="list-style-type: none"> -Describe cell organisation in multicellular organisms. -Identify tissues in plants and animals. -Explain the general functions of each tissue. Refer to Plants (palisade, phloem, epidermis, xylem , spongy) and Animals (muscle, bone, nerves, blood) 	<ul style="list-style-type: none"> Question & answer Discussion Demonstration Group work 		<ul style="list-style-type: none"> GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 5		Cell Organization	<ul style="list-style-type: none"> -Identify organs in plants and animals. Refer to Plants (leaves, roots, stems, fruits, flowers), Animals (heart, liver, brain, lungs, kidneys) -Explain the general function of each organ. plants (leaves, roots, stems, fruits flowers), animals (heart, liver, brain, lungs, kidneys) 	<ul style="list-style-type: none"> Question & answer Discussion Demonstration Group work Illustration 		<ul style="list-style-type: none"> GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 6		Diffusion and Osmosis	<ul style="list-style-type: none"> -Describe the processes of diffusion and osmosis Diffusion: Refer to movement of solutes and gases along concentration gradient Osmosis as the movement of water through selectively permeable membrane. 	<ul style="list-style-type: none"> Question & answer Discussion Demonstration Group work Illustration 		<ul style="list-style-type: none"> GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 7			<ul style="list-style-type: none"> - Explain the effects and importance of diffusion and osmosis in living 	<ul style="list-style-type: none"> Question & answer Discussion 		<ul style="list-style-type: none"> GCSE Biology by D.G Mackean. Biological science

			organisms.e.g Plasmolysis, turgidity, lysis and crenation -Describe active transport as the uptake of mineral salts by root hair cells from the soil against concentration gradient using energy	Demonstration Group work Illustration		Biology books 10 GCSE Biology by Becket
WEEK 8	ENZYMES	Characteristics of enzymes	- Describe characteristics of Enzymes. Refer to optimum temperature, pH, specificity of enzymes	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 9			-Demonstrate the effects of temperature and pH on enzyme action - Explain industrial application of enzymes in baking bread or buns, brewing alcoholic drinks, biological washing powder,tarning leather	Question and answer Discussion Group work		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 10	NUTRIENTS	classes of nutrients	-Investigate the presence of nutrients in food samples. Sources of nutrients: -Identify good sources of nutrients Refer to sources of carbohydrates, proteins, lipids, Vitamins	Question and answer Discussion Group work		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket

WEEK 11		classes of nutrients	<ul style="list-style-type: none"> - Describe the importance of nutrients, salts, vitamins and roughage to the body. -Identify nutritional related disorders/ conditions .refer to nutritional deficiency: e.g. kwashiorkor, marasmus, goitre, scurvy, rickets, anaemia, obesity 	Question and answer		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 12		Dietary needs	<ul style="list-style-type: none"> - Design a balanced diet for people with different conditions. .Refer to diets of the aged, pregnant woman, lactating woman, sick person, pre-school aged, sportsman and the youth. 	Question and answer		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
13	13	13	test	test	test	test

GRADE 10 TERM 2

WEEK & DATE		CONTENT (what to teach)	OBJECTIVES	METHODOLOGY		REFERENCE
WEEK 1		Plant nutrients	<ul style="list-style-type: none"> - Describe the micro and macro plant nutrients. Refer to Macro: nitrogen, potassium, phosphorus (NPK) Micro: calcium, magnesium, sulphur boron, copper, iron) - Describe deficiency diseases of macro and micro plant . Deficiency diseases: Chlorosis, stunted growth, leaf flecking. 	<ul style="list-style-type: none"> Question & answer Discussion Demonstration Group work Illustration 		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 2	Nutrition in plants	External and internal structure of a leaf.	<ul style="list-style-type: none"> -Describe the external and internal structure of a leaf. -Investigate factors necessary for photosynthesis 	<ul style="list-style-type: none"> Question & answer Discussion Demonstration Group work Illustration 		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becke
WEEK 3	NUTRITION IN PLANTS		<ul style="list-style-type: none"> -Describe the light and dark reactions of photosynthesis. -Describe the chemical reactions for photosynthesis 	<ul style="list-style-type: none"> Question & answer Discussion Demonstration Group work Illustration 		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 4	NUTRITION IN PLANTS		-Describe the fate of glucose in plants.	<ul style="list-style-type: none"> Question & answer Discussion 		GCSE Biology by D.G Mackean.

			-Describe the importance of nutrients in plant. - Identify storage organs of plants.	Demonstration Group work		Biological science Biology books 10 GCSE Biology by Becket
WEEK 5	SAPROPHYTIC NUTRITION	Rhizopus	- Investigate the structure of Rhizopus or Mucor. Structure of Rhizopus or Mucor: Mycelium (hyphae, sporangium, sporangiophore, stolons, rhizoids) - State the functions of the parts of Rhizopus. Refer to Mycelium (hyphae, sporangium, sporangiophore, stolons and rhizoids)	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 6		Rhizopus	-Describe what saprophytic nutrition is. Feeding on dead or decaying matter.(extracellular digestion) -Explain the importance of saprophytic nutrition. -State other types of saprophytic nutrition as symbiosis/mutualism and parasitism	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 7	NUTRITION IN ANIMALS	Dentition in mammals	- Identify the external structure and function of the human teeth. - Describe the internal structure and function of the human tooth.	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 8			-Describe the dental			GCSE Biology by D.G

			<p>formulae of a dog and human being.</p> <ul style="list-style-type: none"> - Identify the differences in dentition of carnivores, herbivores and omnivores. Refer to type of teeth present, function and the number of each type of teeth present in man, dog and goat -Describe causes, signs and symptoms of gum disease and tooth decay. 	<p>Question & answer Discussion Demonstration Group work Illustration</p>		<p>Mackean. Biological science Biology books 10 GCSE Biology by Becket</p>
WEEK 9		Holozoic nutrition	<ul style="list-style-type: none"> - State the main processes in holozoic nutrition. -Identify the main regions of the alimentary canal and associated organs 	<p>Question & answer Discussion Demonstration Group work Illustration</p>		<p>GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket</p>
WEEK10			<ul style="list-style-type: none"> - Describe the processes of digestion, absorption and assimilation of nutrients. - Investigate the common ailments of the alimentary canal. Dehydration (loss of mineral salts and loss of fluids) and inflammation of the alimentary canal 	<p>Question & answer Discussion Demonstration Group work Illustration</p>		<p>GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket</p>
WEEK 11			<ul style="list-style-type: none"> -Describe the metabolic functions of the liver. Refers to deamination, detoxification, production of bile, regulation of blood sugar, storage of glycogen, vitamins and iron 	<p>Question & answer Discussion Demonstration Group work Illustration</p>		<p>GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket</p>

			- Describe the effects of common ailments of the liver, i.e. Poor bile formation, high blood sugar, low blood sugar and high toxin levels in the blood.			
WEEK 12	RESPIRATORY SYSTEM	Gaseous exchange	- Describe the respiratory organs of animals. Respiratory organs of various animals: Insects (spiracles, trachea and tracheoles), Fish (operculum, mouth, gills), Humans (nostrils, trachea, bronchi, bronchioles, alveoli) -Describe the mechanism of gaseous exchange in animals. Refer to diffusion of gases in respiratory organs of humans, fish and insect.	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 13	END OF TERM TESTS		END OF TERM TESTS	END OF TERM TESTS	END OF TERM TES	END OF TERM TESTS

GRADE 10 TERM 3

WEEK & DATE		CONTENT <i>(what to teach)</i>	OBJECTIVES	METHODOLOGY		REFERENCE
WEEK 1	RESPIRATORY SYSTEM	Gaseous exchange	-Describe the composition of inspired and expired air. - Describe the adverse effects of air pollutants on health of human beings. Refer to Cigarette smoke (nicotine and tar), sulphur dioxide and carbon monoxide - Explain gaseous exchange in green plants.	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK2		Types of Respiration	- Describe types of tissue respiration. Aerobic and anaerobic respiration -Describe the production of adenosine triphosphate. Equations (word and chemical)	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket

WEEK 3		Types of Respiration	- Investigate the production of carbon dioxide during respiration. Refer to Formation of ATP from ADP and P	Question & answer Discussion Demonstration Group work Illustration	Experiment to show production of CO ₂ during aerobic and anaerobic respiration)	GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 4			- State ways in which respiration is important. Production of biological energy, Maintenance of levels of CO ₂ and O ₂ in atmosphere -Explain the industrial applications of respiration, as Baking, brewing, diary, sewage treatment.	Question & answer Discussion Demonstration Group work Illustration		
WEEK 5	HEALTH	diseases	- Describe what good health is. Refer to physical, mental and social wellbeing, dependent on receiving a balanced diet and an appropriate physical and mental activity. - Define disease. Refer to loss of health resulting from disturbances of the normal processes of the body.	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 6			-Describe various types of diseases.: - Describe causative agents, signs and symptoms, methods of transmission and control. Refer to the following diseases: Cholera, Malaria and Bilharzia (Schistosomiasis).	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket

WEEK 7			<ul style="list-style-type: none"> - Describe ways of HIV transmission - Explain the dangers of having multiple sexual partners. - Describe ways of safe sexual practices 	<ul style="list-style-type: none"> Question & answer Discussion Demonstration Group work Illustration 		<ul style="list-style-type: none"> GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 8			<ul style="list-style-type: none"> - Identify the causes of stigma to people living with HIV and AIDS. Refer to Fear, myth, lack of support groups, lack of information on the available services -Describe ways of reducing discrimination to people living with HIV and AIDS. Ways of reducing stigma: Support, care, treatment (ART) and advocacy. 	<ul style="list-style-type: none"> Question & answer Discussion Demonstration Group work Illustration 		<ul style="list-style-type: none"> GCSE Biology by D.G Mackean. Biological science Biology books 10 GCSE Biology by Becket
WEEK 9		Immunity	<ul style="list-style-type: none"> - Explain the term of immunity to disease. Refer to active, passive artificial and natural immunity. -Investigate the importance of the immune system (Refer to control of diseases). <p>- Describe the factors that</p>			

WEEK 10			<p>reduce immunity to pathogenic diseases</p> <p>Diet, repeated invasions by pathogens and development of resistant strains of the pathogens</p> <p>- Explain the importance of immunisation. refer to induced active immunity</p>			
WEEK 11		The life cycle of the housefly and the mosquito.	<p>- Describe the life cycle of a housefly: Egg, larva, pupa and adult</p> <p>-Describe the life cycle of a mosquito.</p>			
WEEK 12			<p>-Explain the role of houseflies and mosquitoes in the spreading of diseases. Vectors in the spread of dysentery, cholera, typhoid. Role of Mosquito: Vector for malaria. Refer to use of biological and chemical control)</p> <p>-Relate the control of malaria to the life cycle of the mosquito.</p> <p>- Relate the control of water borne diseases to the life cycle of the housefly.such as dysentery, cholera, typhoid and the life cycle of the housefly</p>			
WEEK 13	TESTS	TESTS	. TESTS	TESTS	TESTS	TESTS

GRADE 11 TERM 1

Subject: BIOLOGY 5090 Grade: 11 Term: ONE Year: 20.... Teacher: ----- periods per week: 5

WEEK & DATE	TOPIC	SUB TOPIC	EXPECTED OUTCOMES	METHOD/ TEACHING AIDS	SUGGESTED EXPERIMENT	REFERENCE
WEEK 1	TRANSPORT AND STORAGE IN PLANTS	Transport in plants.	- Describe the external and internal structure of roots and stems. - Describe absorption of water and uptake of mineral salts by roots.	Question & answer Class discussion. Demonstration Illustration	Demonstration of uptake of minerals by using young plant and colored solution	GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket
WEEK 2			- Describe the movement of water and transport of mineral salts from the roots to the leaves. - Describe the movement of organic solutes in phloem.	Question & answer Discussion Use of Charts showing potometer.		GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket
WEEK 3		Transpiration.	- Define Transpiration. - Demonstrate the process of transpiration.	Question & answer Discussion Demonstration	Covering a potted plant with	GCSE Biology by D.G Mackean. Biological

			<ul style="list-style-type: none"> - Investigate factors that affect the rate of Transpiration Describe adaptive features of a leaf to reduce excess loss of water. -Explain the significance of transpiration in plants 	Illustration	transparent plastic for 24 hours.	science Biology books 11 GCSE Biology by Becket
WEEK 4	TRANSPORT IN MAN	Blood	<ul style="list-style-type: none"> -Identify the composition of blood. Solid (leucocytes, erythrocytes, thrombocytes), Liquid (plasma). - Explain the functions of blood. - Distinguish between the red and the white blood cells. Structural and functional differences of red blood cells(erythrocytes) and white blood cells (leucocytes) 	Question & answer Discussion Demonstration Illustration	Use of the microscope to observe prepared blood slides.	GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket
WEEK 5			<ul style="list-style-type: none"> -Identify the sites where the blood cells are produced. RBCs-Bone marrow. WBCs- Bone marrow, lymph nodes, thymus and spleen. Platelets- Bone marrow -Explain the process of blood clotting : Change of enzyme prothrombin to thrombin, fibrinogen to fibrin and role of calcium ions and thromboplastin 	Question & answer Discussion Demonstration Illustration		
WEEK 6		Blood vessels	-Define blood vessels	Use of charts		GCSE Biology by

			<p>Identify the main blood vessels in the human body.</p> <ul style="list-style-type: none"> - Compare the structure and functions of arteries, veins and capillaries 	<p>showing main blood vessels in human body.</p> <p>Class discussion</p> <p>Illustration</p> <p>Question and answer.</p>		<p>D.G Mackean.</p> <p>Biological science</p> <p>Biology books 11</p> <p>GCSE Biology by Becket</p>
WEEK 7		The human heart.	<ul style="list-style-type: none"> -Describe the structure of the human heart. (Refer to chambers, valves, vessels, including coronary arteries) - Describe how the heart functions. Diastole and systole (Include pulse rate and heart beat). 	<ul style="list-style-type: none"> -Use of model of the human heart. -Use of charts showing the human heart. -Group discussion. -You Tube of the human heart and how it operates. 		<p>GCSE Biology by D.G Mackean.</p> <p>Biological science</p> <p>Biology books 11</p> <p>GCSE Biology by Becket</p>
WEEK 8		Circulatory Systems.	<ul style="list-style-type: none"> -Describe types of blood circulatory systems (Closed and open circulatory systems) -Describe double circulation in terms of Pulmonary and systemic circulation -Identify the main blood vessels in the double circulatory system - Distinguish between the single and double circulation. - Explain the causes of coronary heart disease. Include diet, stress, smoking and pollution -Describe ways of preventing coronary heart diseases.(good diet and importance of 	<ul style="list-style-type: none"> -Charts showing double circulation (systemic and pulmonary circulation). -Question and answer. -Class discussion 		<p>GCSE Biology by D.G Mackean.</p> <p>Biological science</p> <p>Biology books 11</p> <p>GCSE Biology by Becket</p>

Week 9		Blood groups	<p>exercises.)</p> <ul style="list-style-type: none"> - Describe the ABO blood groups. Refer to blood types A,B,AB and O, antigens and antibodies -Explain the importance of determining the blood groups and Rhesus factors. Refer to blood transfusions and transplants; the danger of Rhesus positive blood to the foetus (haemolytic disease) 	<ul style="list-style-type: none"> -Question and answer. -Class discussion 		<p>GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket</p>
WEEK 10			<ul style="list-style-type: none"> -Explain the donor recipient compatibility of blood groups.Donor-Recipient compatibility of Blood: Refer to antibody and Antigen reaction when bloods of different groups are mixed. - Explain the importance of screening the blood before transfusion.(Refer to risk of transmission of HIV and Hepatitis B by blood donors). 	<ul style="list-style-type: none"> -Question and answer. -Class discussion <p>Excursion or field trip to the hospital or clinic.</p>		<p>GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket</p>

Week 11		Blood disorders Lymphatic System	<ul style="list-style-type: none"> -Investigate common blood disorders .refer to Leukaemia, sickle cell anaemia and haemophilia. - Describe the structure of the lymphatic system in relation to blood circulatory system. - Compare tissue fluid and lymph to blood. - Describe the flow of lymph. -Describe the function of lymph nodes in disease preventionn, (STIs, TB, injury) 	Question and answer. -Class discussion		GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket
Week 12	EXCRETION	Excretion	Describe the process of excretion. Refer to removal of toxic metabolic waste: Animals (Carbon dioxide, Nitrogenous wastes,) Plants (latex) -Explain the importance of excretion to animals and plants. Refer to Removal of unwanted by-products. Regulation of water content of body fluids.	Question and answer. -Class discussion		GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket

Week 13	END OF TERM TEST.	END OF TERM TEST	END OF TERM TEST	END OF TERM TEST	END OF TERM TEST	
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GRADE 11 TERM 2

Subject: BIOLOGY 5090 **Grade:** 11 **Term:** TWO **Year:** 20.....**Teacher:** ----- **periods per week:** 5

<i>WEEK & DATE</i>	<i>TOPIC</i>	<i>SUB TOPIC</i>	<i>SPECIFIC OUTCOMES</i>	<i>METHOD/ TEACHING AIDS</i>	<i>SUGGESTED EXPERIMENTS</i>	<i>REFERENCE</i>
WEEK 1		Excretion in animals.	<ul style="list-style-type: none"> - Identify the internal structure of the kidneys. Refer to Cortex, medulla, pelvis, structure of nephron. - Explain the mechanism of excretion in the kidney. Refer to ultra -filtration and selective re-absorption, osmoregulation 	<ul style="list-style-type: none"> Question & answer Discussion Demonstration Group work Illustration Chart showing nephron of the human and a model of the kidney. 		<ul style="list-style-type: none"> GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket

WEEK2		Dialysis machine.	<ul style="list-style-type: none"> - Identify common disorders and diseases associated with the kidney (refer to infections, high blood pressure and low blood pressure) and remedies (dialysis machine and kidney transplant). -Discuss structure of dialysis machine and how it operates 	<ul style="list-style-type: none"> Question & answer Discussion Demonstration Group work Illustration 		<ul style="list-style-type: none"> GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket
WEEK 3		<ul style="list-style-type: none"> Lungs The human skin 	<ul style="list-style-type: none"> --Investigate the role of lungs in excretion. (Refer to elimination of carbon dioxide) -Identify the structure of the human skin (Refer to the Epidermis, dermis and adipose tissue and associated structures) Discuss role of skin in excretion of salts, urea and water. 	<ul style="list-style-type: none"> Question & answer The chart showing the human skin. Class discussion. 		<ul style="list-style-type: none"> GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket
WEEK 4	Homeostasis		<ul style="list-style-type: none"> -Describe homeostasis and list organs involved in homeostasis. -Describe role of kidneys in homeostasis. 	<ul style="list-style-type: none"> Question and answer. 		<ul style="list-style-type: none"> GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by

			(Refer to the role of Anti Diuretic Hormone (ADH) - Describe the mechanism of thermoregulation by the skin. Refer to Overheating(Vasodilation and sweating), Overcooling (Vasoconstriction and shivering).	Class discussion. Group work.		D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket
WEEK 5			Describe the role of the liver in the regulation of blood sugar(conversion of Glucose to glycogen and vice versa, regulation of body temperature and amino acids.	Question & answer Discussion Group work		GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket
WEEK 6	THE ENDOCRINE SYSTEM	Hormones	Describe what hormones are. -Identify the endocrine glands in a human being. - Identify the hormones produced by the pancreas, adrenal, thyroid and pituitary glands. - Describe the functions of thyroxine, insulin, glucagon and adrenaline.	Question & answer Discussion Group work Use of charts using showing the endocrine glands.		GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket

WEEK 7	<u>THE NERVOUS SYSTEM AND SENSE ORGANS</u>	The nervous system	<ul style="list-style-type: none"> -Identify main parts of the nervous system in a human being. -Describe what neurones are. - Explain the path taken by an impulse through a spinal reflex arc. -Describe what the spinal, cranial and the conditioned reflex actions are? 	<p>Question & answer</p> <p>Group work</p> <p>Use of charts showing different types of neurons.</p>		GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket
Week 8			<ul style="list-style-type: none"> -Identify main parts of the nervous system in a human being. -Describe what neurones are. - Explain the path taken by an impulse through a spinal reflex arc. - Describe what the spinal, cranial and the conditioned reflex actions are 	<p>Question & answer</p> <p>Group work</p> <p>Use of charts showing the spinal reflex arc.</p>		GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket.
Week 9		The human brain	<ul style="list-style-type: none"> -Identify the main parts of the brain of a human being. 	<p>Question &</p>		GCSE Biology by D.G Mackean. Biological science

			<ul style="list-style-type: none"> -Explain the functions of the forebrain and the hindbrain. - Describe the effects of abuse of drugs on the nervous system -Explain the effects of tetanus infection 	<p>answer</p> <p>Group work</p> <p>Use of charts showing the human brain.</p>		<p>Biology books 11 GCSE Biology by Becket.</p> <p>et</p>
WEEK 10	Sense organs.	The human eye.	<ul style="list-style-type: none"> -Identify the external and internal structures of the human eye. -Explain the functions of the parts of eye. -Describe the accommodation of the eye. 	<p>Question & answer</p> <p>Discussion</p> <p>Demonstration</p> <p>Use of charts showing the human eye.</p>	<p>Use mirrors to draw external structure of the eye.</p> <p>Conduct experiment investigate blind spot.</p>	<p>GCSE Biology by D.G Mackean.</p> <p>Biological science</p> <p>Biology books 11 GCSE Biology by Becket</p>

WEEK11			<ul style="list-style-type: none"> - Describe the causes of short and long sightedness. - Explain the correction of short and long sight. - Investigate the common causes and methods of preventing blindness. -Discuss pupil reflex in bright and dim light. 	<p>Question & answer Class discussion.</p> <p>Question & answer Class discussion Demonstration.</p>		<p>GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket</p>
WEEK 12			<ul style="list-style-type: none"> .Describe the structure of the human ears. -Explain the functions of the parts of the ear. -Describe causes and methods of preventing deafness. - Describe the role of the skin as a sense organ 	<p>Question & answer Discussion Demonstration</p> <p>Use of charts showing the human ear.</p>		<p>GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket</p>
WEEK 13	END OF TERM TESTS	END OF TERM TESTS	END OF TERM TESTS	END OF TERM TESTS	END OF TERM TESTS	END OF TERM TESTS

GRADE 11 TERM 3

Subject: BIOLOGY 5090 **Grade:** 11 **Term:** THREE **Year:** 20....**Teacher:** ----- **periods per week:** 5

<i>WEEK & DATE</i>	<i>TOPIC</i>	<i>SUB TOPIC</i>	<i>SPECIFIC OUTCOMES</i>	<i>METHOD TEACHING AIDS</i>	<i>SUGGESTED EXPERIMENTS</i>	<i>REFERENCE</i>
WEEK 1	SKELETON AND LOCOMOTION	Skeleton	-Identify various types of skeleton. -Describe the functions of the skeleton.	Question & answer Discussion		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket
e		The Skeleton of an insect	-Identify various types of skeleton. Describe the functions of the	Question & answer Discussion Collection of		GCSE Biology by D.G Mackean. Biological science Biology books 12

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			<p>skeleton.</p> <ul style="list-style-type: none"> - Investigate the structure and composition of an exoskeleton. - Identify joints and muscles in the limbs of a grasshopper. <p>Refer to Joints and attachment of muscle (flexors and extensors) in the limbs of a grasshopper</p>	<p>different types of insects to show the exoskeleton.</p>		GCSE Biology by Becket
WEEK 3		The Mammalian Skeleton	<p>.Identify the bones of the axial and the appendicular skeletons.</p> <ul style="list-style-type: none"> - Explain a bone as a living tissue. Refer to living cells in bones, production of red blood cells and nerve cells. 	<p>Question & answer Discussion</p> <p>Model of the human skeleton.</p>		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket
WEEK 4		Muscles and joints.	<ul style="list-style-type: none"> . Describe the structure of a skeletal muscle. - Demonstrate the action of antagonistic 	<p>Question & answer</p> <p>Discussion</p> <p>Demonstration</p>		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket

			<p>muscles.</p> <ul style="list-style-type: none"> -Compare the ball and socket joint and the hinge joint. - Identify the parts and functions of the synovial joint. - Compare the joints, muscle attachment and movement in endoskeletons with those of exoskeletons 	<p>Question & answer Discussion</p>		<p>GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket</p>
WEEK 5	TROPIC AND TAXIC RESPONSES	Tropic Responses	<ul style="list-style-type: none"> -Describe what tropic response is. -Demonstrate growth responses exhibited by plants. - Explain the effects of light energy and gravity on the growth of plants. (Refer to the Auxin theory). 	<p>Question & answer Discussion Group work</p>		<p>Question & answer Discussion Demonstration Group work Illustration</p>
WEEK 6		Taxic Responses	<ul style="list-style-type: none"> -Describe what taxic response is. -Explain responses exhibited by invertebrates. -Describe the use of the choice chamber. 	<p>Question & answer Discussion Group work</p>	Use choice chamber to use phototaxis .	<p>GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket</p>
Week 7	11.9 GROWTH AND	Growth in Plants	<ul style="list-style-type: none"> - Explain the meaning of growth. -Identify the regions 	<p>Question & answer Discussion</p>		<p>GCSE Biology by D.G Mackean. Biological science</p>

	DEVELOPMENT		of growth in stems and roots. - Identify differentiated cells in plants.	Demonstration Group work		Biology books 11 GCSE Biology by Becket
Week 8			Explain the differentiation of primary and secondary tissues in plants. Refer to meristematic region differentiating into collenchymas, parenchyma, cambium, sclerenchyma, phloem, and xylem	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket
Week 9		Germination and Development	Structure of a dicot and a monocot seed. Distinguish the structure of a dicotyledonous and a monocotyledonous Seed.	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket
Week 10			. List conditions necessary for germination. -Investigate conditions	Question & answer Discussion Demonstration Group work	Experiments on germination involving the two types.	GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by

Week 11			necessary for germination with appropriate control experiments. - Discuss hypogeal and epigeal germination. (refer to the elongation of epicotyls in dicots) and hypogeal(refer to elongation of hypocotyls in monocots) germination	Illustration Question and answer Discussion Demonstration.		Becket GCSE Biology by D.G Mackean. Biological science Biology books 11 GCSE Biology by Becket
Week 12			<i>Demonstrate</i> hypogeal and epigeal germination,	Use of videos showing the types of Germination You tube.		
Week 13	END OF TERM TESTS	END OF TERM TESTS	END OF TERM TESTS	END OF TERM TESTS	END OF TERM TESTS	END OF TERM TESTS

GRADE 12 TERM 1

Subject: **BIOLOGY 5090** Grade: **12** Term: **ONE** Year: **20.....** Teacher: ----- periods per week: **5**

WEEK & DATE	TOPIC	SUB TOPIC	SPECIFIC OUTCOMES	METHOD	SUGGESTED EXPERIMENTS	REFERENCE
WEEK 1	Asexual reproduction	Reproduction in fungi, amoeba and bacteria	. - Describe the different types of reproduction. - Describe asexual	Question & answer Discussion Demonstration		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by

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			reproduction in unicellular organisms . Describe the sexual and asexual reproduction in fungus.	Group work Illustration		Becket
WEEK2		Reproduction in fungi, amoeba and bacteria Vegetative Reproduction	Explain the importance of fungi and bacteria. - Describe different methods of natural propagation - Investigate different methods of artificial propagation - Explain the advantages and disadvantages of vegetative propagation.	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket
WEEK 3	Sexual reproduction in flowering plants	Reproduction in plants	-Identify the parts of a typical flower. - Describe the functions of various parts of a flower - Distinguish between two different types of pollination. - Distinguish between wind and insect pollination	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket
WEEK 4			- Describe the process of fertilization in flower . Investigate ways in	Question & answer Discussion Demonstration		GCSE Biology by D.G Mackean. Biological science Biology books 12

		Pollination	<p>which seeds and dispersed.</p> <ul style="list-style-type: none"> - Explain the adaptation of fruits and seeds to mode of dispersal. - Explain the importance of fruit and seed dispersal . 	<p>tion Group work Illustration</p>		GCSE Biology by Becket
WEEK 5	Reproduction in animals	Sexual reproduction in animals	<ul style="list-style-type: none"> - Describe the process of reproduction in a frog. - Identify male and female reproductive organs in human beings. <p>Explain the functions of the different organs of the human reproductive system.</p>	<p>Question & answer Discussion Demonstration Group work Illustration</p>		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket
WEEK6		Sexual reproduction in animals	<ul style="list-style-type: none"> -Describe the biological changes associated with sexual development in human beings - Describe the menstrual cycle. - Explain the processes of fertilisation and implantation in human beings. 	<p>Question & answer Discussion Demonstration Group work Illustration</p>		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket
WEEK 7		Sexual reproduction in animals	<ul style="list-style-type: none"> - Identify causes of infertility in human beings - Describe development of the embryo in the uterus. - Describe health risks 	<p>Question & answer Discussion Demonstration Group work Illustration</p>		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket

			<p>associated with foetal development</p> <ul style="list-style-type: none"> -Describe healthy pregnancy and safe child birth 			
WEEK 8	Genetics	<p>Birth control</p> <p>Variation in plant and animal species</p>	<ul style="list-style-type: none"> - Explain some methods of birth control. - Describe the benefits and possible risks of using contraceptives - Describe terms used in the study of genetics. - Describe the variations in human beings. - Observe variations in flowering plants. 	<p>Question & answer</p> <p>Discussion</p> <p>Demonstration</p> <p>Group work</p> <p>Illustration</p>		<p>GCSE Biology by D.G Mackean.</p> <p>Biological science</p> <p>Biology books 12</p> <p>GCSE Biology by Becket</p>
WEEK 9		12.4.2 Cell division and Chromosomes	<p>12.4.1.4 Distinguish between continuous and discontinuous variations.</p> <p>12.4.1.5 Describe the factors that cause variations among plant and animals of the same species.</p> <p>12.4.2.1 Describe the stages of cell division.</p> <p>12.4.2.3 Explain the importance of mitosis and</p>	<p>Question & answer</p> <p>Discussion</p> <p>Demonstration</p> <p>Group work</p> <p>Illustration</p>		<p>GCSE Biology by D.G Mackean.</p> <p>Biological science</p> <p>Biology books 12</p> <p>GCSE Biology by Becket</p>

			meiosis.			
WEEEK 10		inheritance	12.4.3.1 Explain what a monohybrid inheritance is. 12.4.3.2 Demonstrate the inheritance of human characteristics using the crossings 12.4.3.3 Explain the factors that determine the sex of a human being.	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket
WEEK 11			- Explain the inheritance of sex linked characteristics. - Describe the mechanism of ABO blood groups inheritance.	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket
		Mutation	- Describe what mutation is. - Identify the causes of mutation. - Explain effects of mutation. - Describe the uses of mutations	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket

WEEK13		End of term test	End of term test	End of term test		End of term test

GRADE 12 TERM 3

WEEK & DATE		SUBTOPIC	SPECIFIC OUTCOMES	METHOD	SUGGESTED EXPERIMENTS	REFERENCE
WEEK 1	Classification of Plants and animals	Classification	<ul style="list-style-type: none"> - Identify various types of plants. - Identify various types of animals. - Formulate a simple key for classification of plants and animals. 	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket
WEEK2		Classification	- Use a simple classification key to identify plants and	Question & answer		GCSE Biology by D.G Mackean.

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		Soil Composition and fertility.	<p>animals</p> <ul style="list-style-type: none"> - Demonstrate soil composition. - Describe the types of soil and their properties. - Describe factors that make soil fertile 	<p>Discussion Demonstration Group work Illustration</p>		<p>Biological science Biology books 12 GCSE Biology by Becket</p>
WEEK 3		Soil Composition and fertility.	<ul style="list-style-type: none"> - Investigate causes of loss of fertility in soil. - Explain methods of improving and retaining soil fertility. - Determine the distribution of earth worms in different types of soils 	<p>Question & answer Discussion Demonstration Group work Illustration</p>		<p>GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket</p>
WEEK 4	Ecology	Biotic and abiotic interactions	<ul style="list-style-type: none"> - Explain the term ecology - Explain the terms used in ecology 	<p>Question & answer Discussion Demonstration Group work Illustration</p>		<p>GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket</p>
WEEK 5		Feeding relationships and energy flow	<ul style="list-style-type: none"> - Design a food chain. - Design a food web- - Describe the way energy flows along food chains and food webs. - Describe the efficiency of energy transfer between trophic levels - Construct pyramids of 	<p>Question & answer Discussion Demonstration Group work Illustration</p>		

			numbers, bio-mass and energy			
WEEK 6		Population	<ul style="list-style-type: none"> - Explain the term population. - Investigate factors that cause change in population size. - Interpret population data. 	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket
WEEK 7		Carbon and nitrogen, Water cycles	<ul style="list-style-type: none"> - Describe how carbon and nitrogen are cycled within an ecosystem. - Describe what the water cycle is. 	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket
WEEK 8		Ecosystem	<ul style="list-style-type: none"> - Investigate key features of an ecosystem. - Explain the effects of Agriculture on an ecosystem. - Describe the effects of deforestation on soil stability and climate. 	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket

WEEK 9		Pollution	<ul style="list-style-type: none"> - Describe the undesirable effects of pollution. - Determine measures to prevent pollution 	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket
WEEK 10		conservation	<ul style="list-style-type: none"> - Identify the importance of conserving plant and animal species. - Explain how to reuse, reduce and recycle materials Investigate the importance of sustainable use of resources	Question & answer Discussion Demonstration Group work Illustration		GCSE Biology by D.G Mackean. Biological science Biology books 12 GCSE Biology by Becket

WEEK 13	MOCK EXAMINAT IONS	MOCK EXAMINATIONS	MOCK EXAMINATIONS	MOCKEXAMIN ATIONS	MOCK EXAMINATIONS	MOCK EXAMINATIONS
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