

Subject: Biology 2019-2020

Scheme of work/Term wise syllabus breakup

Class Level: 10th O - LEVEL

FIRST TERM				
Strand	Unit	Topic	Objective	Week
	Excretion	9.1 Structure and function of kidneys 9.2 Kidney dialysis	(a) define excretion as the removal of toxic materials and the waste products of metabolism from organisms	1
			(b) describe the removal of carbon dioxide from the lungs	1
			(c) identify on diagrams and name the kidneys, ureters, bladder, urethra and state the function of each (the function of the kidney should be described simply as removing urea and excess salts and water from the blood; details of kidney structure and nephron are not required)	
			(d) describe dialysis in kidney machines as the diffusion of waste products and salts (small molecules) through a membrane; large molecules (e.g. protein) remain in the blood.	TOTAL: 2
	Homeostasis	10.1 Structure and function of the skin	(a) define homeostasis as the maintenance of a constant internal environment (b) explain the concept of control by negative feedback	1
			(c) identify, on a diagram of the skin, hairs, sweat glands, temperature receptors, blood vessels and	1

			<p>fatty tissue</p> <p>(d) describe the maintenance of a constant body temperature in humans in terms of insulation and the role of temperature receptors in the skin, sweating, shivering, blood vessels near the skin surface and the coordinating role of the brain</p>	TOTAL: 2
	Coordination and response	<p>11.1 Nervous system</p> <p>11.2 Receptors</p> <p>11.3 Reflex action</p> <p>11.4 Hormones</p>	<p>(a) state that the nervous system (brain, spinal cord and nerves) serves to coordinate and regulate bodily functions</p> <p>(b) identify, on diagrams of the central nervous system, the cerebrum, cerebellum, pituitary gland and hypothalamus, medulla, spinal cord and nerves</p> <p>(c) describe the principal functions of the above structures in terms of coordinating and regulating bodily functions</p> <p>(d) describe the gross structure of the eye as seen in front view and in horizontal section</p> <p>(e) state the principal functions of component parts of the eye in producing a focused image of near and distant objects on the retina</p> <p>(f) describe the pupil reflex in response to bright and dim light</p> <p>(g) outline the functions of sensory neurones, relay neurones and motor neurones</p> <p>(h) discuss the function of the brain and spinal cord in producing a coordinated response as a result of a specific stimulus (reflex action)</p> <p>(i) define a hormone as a chemical substance,</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>

			<p>produced by a gland, carried by the blood, which alters the activity of one or more specific target organs and is then destroyed by the liver</p> <p>(j) state the role of the hormone adrenaline in boosting the blood glucose concentration and give examples of situations in which this may occur</p> <p>(k) state the role of the hormone insulin in controlling blood glucose concentration</p> <p>(l) describe the signs (increased blood glucose concentration and glucose in urine) and treatment (administration of insulin) of diabetes mellitus.</p>	TOTAL ; 5
	Respiration	<p>8.1 Aerobic respiration 8.2 Anaerobic respiration 8.3 Human gas exchange</p>	<p>(a) define respiration as the release of energy from food substances in all living cells</p> <p>(b) define aerobic respiration as the release of a relatively large amount of energy by the breakdown of food substances in the presence of oxygen</p> <p>(c) state the equation (in words or symbols) for aerobic respiration</p> <p>(d) state the uses of energy in the human body: muscle contraction, protein synthesis, cell division, active transport, growth, the passage of nerve impulses and the maintenance of a constant body temperature (e) define anaerobic respiration as the release of a relatively small amount of energy by the breakdown of food substances in the absence of oxygen</p> <p>(f) state the equation (in words or symbols) for anaerobic respiration in humans and in yeast</p> <p>(g) describe the effect of lactic acid production in</p>	<p>1</p> <p>1</p> <p>1</p>

			<p>muscles during exercise</p> <p>(h) know the percentages of the gases in atmospheric air and investigate and state the differences between inspired and expired air</p> <p>(i) investigate and state the effect of physical activity on rate and depth of breathing</p> <p>(j) identify on diagrams and name the larynx, trachea, bronchi, bronchioles, alveoli and associated capillaries</p> <p>(k) state the characteristics of, and describe the role of, the exchange surface of the alveoli in gas exchange</p> <p>(l) describe the role of cilia, diaphragm, ribs and intercostal muscles (external and internal) in breathing.</p>	<p>1</p> <p>TOTAL: 4</p>
ONE WEEK FOR REVISION				
SECOND TERM				
Strand	Unit	Topic	Objective	Week
	Support, movement and locomotion	12.1 Bones 12.2 Joints 12.3 Antagonistic muscles	<p>(a) identify and describe, from diagrams, photographs and real specimens, the main bones of the forelimb (humerus, radius, ulna and scapula) of a mammal</p> <p>(b) describe the type of movement permitted by the ball and socket joint and the hinge joint of the forelimb</p> <p>(c) describe the action of the antagonistic muscles at the hinge joint.</p>	<p>1</p> <p>1</p> <p>TOTAL: 2</p>

	The use and abuse of drugs	13.1 Antibiotics	(a) define a drug as any externally administered substance that modifies or affects chemical reactions in the body	1
		13.2 Effects of heroin	(b) describe the medicinal use of antibiotics for the treatment of bacterial infection	1
		13.3 Effects of alcohol	(c) describe the effects of the abuse of heroin: a powerful depressant, problems of addiction, severe withdrawal symptoms and associated problems such as crime and infection, e.g. AIDS	1
		SS13.4 Effects of tobacco smoke	(d) describe the effects of excessive consumption of alcohol: reduced self-control, depressant, effect on reaction times, damage to liver and social implications	1
			(e) describe the effects of tobacco smoke and its major toxic components (nicotine, tar and carbon monoxide) on health: strong association with bronchitis, emphysema, lung cancer and heart disease, and the association between smoking during pregnancy and reduced birth weight of the baby	1
			(f) recognise the fact that many people regard smoking as no longer socially acceptable.	TOTAL: 5
	Microorganisms and biotechnology	14.1 Microorganisms	(a) list the main characteristics of the following groups: viruses, bacteria and fungi	1
		14.2 Food biotechnology	(b) outline the role of microorganisms in decomposition	1
		14.3 Industrial biotechnology	(c) explain the role of yeast in the production of bread and alcohol	1
			(d) outline the role of bacteria in yoghurt and cheese production	1
			(e) describe the use of fermenters for large-scale	

			production of antibiotics and single cell protein (f) describe the role of the fungus Penicillium in the production of penicillin.	1 TOTAL: 5
TWO WEEKS REVISION				