Wah Yan College Kowloon
F.4 Biology Scheme of Work (2014-2015)

Textbook	1. New Senior Secondary Mastering Biology (Second Edition) 1B (For Biology & Combined Science) (WY) 2. New Senior Secondary Mastering Biology (Second Edition) 2 (For Biology) (WY) 3. New Senior Secondary Mastering Biology E1: Human Physiology: Regulation and Control (WY)
Other Resources	

SL: Scheduled number of lessons
AL: Actual number of lessons

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Values#
First Term (1/9/2014-2/1/2015, Weeks 1 to 18)	1-2 (Sept)	**<u>Ch 6 Nutrition in Humans</u>** 6.1 The human digestive system	To learn the general plan of the digestive system	2/	Powerpoint slides, Labeling exercise	Labelling exercise, Past paper	1-3
	2-3	6.2 Ingestion	To learn the structure and functions of teeth	2/	Powerpoint slides, Observe human and other organisms' skulls		
	3-5	6.3 Digestion 6.4 Absorption 6.5 Assimilation of the absorbed food 6.6 Egestion	To understand how food is digested, absorbed and assimilated in our body To understand how the small intestine is structurally adapted for food absorption	12/	Observe photomicrographs of stomach and small intestine, Lab: Demonstration of the effect of Bile salts on oil Lab: Simulation of digestion and absorption in the small intestine using dialysis tubing	Past paper Chapter end exercise	
	6 (Oct)	**<u>Ch 7 Gas Exchange in humans</u>** 7.1 The human breathing	To understand the structure and function of the human breathing system	4/	Power point slides Labelling Lab: Examination of pig	MC questions Chapter end exercise	1-3

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		system			lungs		
	7	7.2 Gas exchange in the air sacs	To understand the process of gas exchange	2/	Lab: Observation of microscopic slide of alveoli		
		7.3 Transport of respiratory gases	To know the routes of transport of respiratory gases	2/	Teachers' DVD animation		
	8	7.4 Ventilation	To learn the mechanism of ventilation	2/	Power point slides Video		
	8-10	**Ch 8 Transport in humans** 8.1 The human transport system 8.2 Blood 8.3 blood vessel 8.4 The heart 8.5 Blood circulation	To learn the structure and function of the human circulatory system	8/	Lab: Observation of microscopic slide of artery and vein Lab: Dissection and examination of a pig heart Labelling Power point slides Teachers' DVD animation	MC Questions Past exam Questions	1-3
	11	8.6 Exchange of materials between blood and body cells	To understand the exchange of materials between blood and body cells To be familiar with the formation of tissue fluid	2/			
	12	8.7 Lymphatic system	To learn the structure and function of the human lymphatic system	2/			
	13	***Elective 1**	To know the importance of	4/	Online video	MC Questions	1-3

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		<u>Ch3 Regulation of gas content in blood</u> 3.1 Importance of regulating gas content in blood 3.2 The control of breathing	regulating the gas content in blood		Power point slides Labelling worksheets	Past exam Questions	
	14	3.3 The control of heart beat 3.4 The effect of exercise on breathing and heart beat	To understand the control of breathing and heart beat To know the effect of exercise on the rate and depth of breathing and cardiac output	4/			1-3
Mid- year Examination							
Christmas and New Year Holiday							
Second Term (3/1/2015-16/7/2015, Weeks 19 to 46)	19-20	**<u>Ch 9 Nutrition and gas exchange in plants</u>** 9.1 Nutrition in plants	To know the significance of plants as autotrophs To know how plants obtain nutrients to maintain life To understand how plants exchange gases with the environment	4/	Labelling Worksheet	MC Questions Past exam Questions	1-3
	21	9.2 Gas exchange in plants	To know how the structure of leaves is related to their functions	4/	Lab: Investigation of the effect of light intensity on gas exchange in plants using a data logger		

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	Lunar New Year Holiday						
	24-25	**Ch 10 Transpiration, transport and support in plants** 10.1 Transpiration in plants	To understand how plants lose water during transpiration To know the factors affecting the rate of transpiration	4/	Lab: Design an investigation of the relative abundance of stomata on both sides of a leaf Lab: Investigation of the stomatal density on the upper and lower epidermis of a leaf Lab: Measurement of the rate of transpiration using a bubble potometer	MC Questions Past exam Questions	
	26-27	10.2 Absorption of water and minerals in plants 10.3 Transport in plants 10.4 Support in platnts	To know how water and minerals are absorbed in plants To study how water, minerals and organic nutrients are transported in plants To know how plants gain support		Lab: Examination of the structure of roots Lab: Examination of the vascular tissues of a young dicotyledonous plant	MC Questions Past exam Questions	
	28	**Ch 11 Cell cycle and division** 11.1 Chromosomes 11.2 The cell cycle and mitotic cell division 11.3 Meiotic cell division	To understand what chromosomes are To know the various stages of the cell cycle To understand the	4/	Power point slides Lab: Examination of different stages of the cell cycle	MC Questions Past exam Questions	

School Term	Weeks	Topics/ Extended Parts*	Learning Objectives/ Teaching Focus	SL/AL	Teaching and Learning Activities	Consolidation and Assessment	Values#
		11.4 Comparison between mitotic and meiotic cell divisions	processes of mitotic and meiotic cell divisions To know the importance of cell division				
	29	**Ch 12 Reproduction in flowering plants** 12.1 Types of reproduction 12.2 Asexual reproduction	To know the types of reproduction To understand asexual reproduction in bacteria and flowering plants	4/	Video: Examination of binary fission in bacteria	MC Questions Past exam Questions	1-3
	30	12.3 Sexual reproduction in flowering plants	To understand sexual reproduction in flowering plants To know the significance of asexual and sexual reproduction	4	Lab: Dissection and examination of a flower Labelling exercise	MC Questions Past exam Questions	1-3
	Uniform Test						
	32	**Ch 13 Reproductions in humans** 13.1 Human Reproductive Systems 13.2 Human gametes	To know the structure and functions of the human reproductive systems	4/	Lab: Rat dissection Label exercise	MC Questions Past exam Questions	1
	Easter Holiday						
	35-37	13.3 Ovulation and menstrual cycle 13.4 Fertilization 13.5 Development of the	To learn the menstrual cycle To know the process of fertilization	6/	Video: The birth process	MC Questions Past exam Questions	

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		embryo and foetus 13.6 The birth process 13.7 Parental Care 13.8 Birth control	To know the development of the embryo and foetus To understand the birth process and methods of birth control				
	37	**Ch 14 Growth and Development** 14.1 concepts of growth and development 14.2 Growth and development in plants 14.3 Measurement of growth 14.4 Growth curves	To learn the concepts of growth and development To understand the germination of seeds and their development into new plants To understand the various parameters for measuring growth To know the stages of growth in annual plants and humans	2	Lab: Observation of the conditions necessary for seed germination Lab: observation of the micrograph of the root and shoot	MC Questions Past exam Questions	1-3
	38-39	***Elective 1 Ch 4 Hormonal control of reproductive cycle** 4.1 Interactions of hormones in the menstrual cycle 4.2 Use of hormones as contraceptives 4.3 Use of hormones in the treatment of infertility	To understand the interaction and significance of hormones in the menstrual cycle To learn the use of hormones as contraceptives and in treatments of infertility	8/	Video: the human body Power point slides	MC Questions Past exam Questions	1-3

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	40	**Ch 15 Detecting the environment** 15.1 Detecting changes in the environment 15.2 Detecting light by the eye 15.3 Detecting sound by the ear 15.4 Detecting light by plants	To understand the roles of receptors and sense organs in detecting the environment To know how humans and plants detect and respond to stimuli (light and sound)	4/	Lab: Dissection of the ox eye Lab: observation of the eye and ear model	MC Questions Past exam Questions	1-3
Final Examination							

* The extended parts should be marked with asterisks. These parts should be more challenging and can be covered when the students can master the knowledge and skills covered in the conventional topics.

Core Values of Wah Yan College, Kowloon

I. Love and care	1. Accept & feel positive about himself 2. Appreciation & Gratitude 3. Empathy & Compassion	4. Forgiveness & Reconciliation 5. Service 6. Family as a basic unit of society; marriage is the foundation of a family
II. Strive for excellence	7. Reflective 8. Commitment 9. Perseverance	10. Curiosity & willingness to learn 11. Value imagination and creativity
III. Respect and Justice	12. Life is valuable and respectable 13. Openness to good in all things 14. Respect for himself & others	15. Integrity 16. Faithfulness
IV. Responsibility	17. Freedom & Self-discipline	19. Social Identities: citizen identity, national identity

	18. Care for the environment	and global citizen identity
V. Faith	20. Experience of God 21. Explore & practise one's faith	22. Appreciate religious liturgies