2019 BIOLOGY SCHEMES OF WORK

FORM 2 BIOLOGY SCHEMES OF WORK

BIOLOGY FORM 2 SCHEMES OF WORK – TERM 1								
WEEK	**LN**	**TOPIC**	**SUB - TOPIC**	**OBJECTIVES**	**LEARNING/ TEACHING ACTIVITIES**	**LEARNING/ TEACHING RESOURCES**	**REFERENCES**	**REMARKS**
1	1-2	TRANSPORT IN PLANTS	Introduction	By the end of the lesson, the learner should be able to: • Define the term transport • List substances transported in plants and animals • Link surface area to volume ratio of organisms to the transport system of the organism • Explain the necessity of transport in plants	• Defining the term transport • Listing substances transported in organisms • Relating surface area to volume ratio of organisms to transport systems	• Large and small cubes • Surface area • Surface area to volume ration of different cubes	• Comprehensive secondary Biology students Bk. 2 page 1-2 • Teachers bk. 2 pages 1-13 • KLB secondary Biology • Students book 2 Page 1 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 1 • Golden tips biology pages 54-58 • Gateway secondary Biology pages 84 • Longman biology page 52	
	3	TRANSPORT IN PLANTS	Structure of roots and root hairs	By the end of the lesson, the learner should be able to: • Draw the structure of roots and root hairs • Relate the structure of the root to their functions	• Discussing the structure of root and root hairs • Drawing the root and root hair • Relating the structure to functions	• Chart of root and root hair	• Comprehensive secondary Biology students Bk. 2 page 2-4 • Teachers bk. 2 pages 1-13 • KLB secondary Biology • Students book 2 Page 2 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 1	

							• Golden tips biology pages 55-56 • Gateway secondary Biology pages 84 • Longman biology page	
	4	TRANSPORT IN PLANTS	Structure of roots and root hairs (practical lesson)	By the end of the lesson, the learner should be able to: • Observe prepared slides of roots and root hairs • Compare monocotyledons and dicotyledonous root sections • Observe charts and drawings of root sections	• Observing and comparing prepared slides of monocotyledonous and dicotyledonous roots and root hairs under a light microscope • Observing charts and drawings of root section	• Microscopes prepared slides of root sections and root hairs • Charts on root sections of monocotyledonous and dicotyledonous roots	• Comprehensive secondary Biology students Bk. 2 page 2-4 • Teachers bk. 2 pages 1-13 • KLB secondary Biology • Students book 2 Page 1-2 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 2-5 • Golden tips biology pages 56 • Gateway secondary Biology pages 84 • Longman biology page	
2	1	TRANSPORT IN PLANTS	Xylem Vessels	By the end of the lesson, the learner should be able to: • Draw and label the structure of the Xylem Vessel • Define Xylem Vessel • Relate the structure of the Xylem Vessel to its function	• Defining the term Xylem Vessel • Drawing and labeling the structure of the Xylem Vessel • Relating the structure of the Xylem Vessel to its function	• Photographs of Xylem Vessels • Chart on Xylem Vessels	• Comprehensive secondary Biology students Bk. 2 page 8-9 • Teachers bk. 2 pages 1-13 • KLB secondary Biology • Students book 2 Page 2-10 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 17-20 • Golden tips biology pages 58 • Gateway secondary	

							Biology pages 84-85 • Longman biology page	
	2	TRANSPORT IN PLANTS	Tracheid elements	By the end of the lesson, the learner should be able to: • Define Tracheid elements • Relate the structure of the Tracheid elements to their functions • Distinguish between xylem vessels and Tracheid elements	• Defining Tracheid elements • Distinguishing between vessels and tracheids • Discussion on the structure of Tracheid elements • Relating the structure of the Tracheid elements to their functions	• Photographs of Tracheid elements • Chart on Tracheid elements	• Comprehensive secondary Biology students Bk. 2 page 8-9 • Teachers bk. 2 pages 1-13 • KLB secondary Biology • Students book 2 Page 10-11 • KLB teachers book 2 pages 5-34 • Longhorn secondary biology: students book 2 page 19-20 • Golden tips biology pages 58 • Gateway secondary Biology pages 84-85 • Longman biology page 53-54	
	3	TRANSPORT IN PLANTS	Absorption water and mineral salts	By the end of the lesson, the learner should be able to: • Describe water and salt uptake by roots from the soil • Explain the physiological process involved in the uptake of water and mineral salts	• Explaining water absorption and mineral salt uptake by roots in plants • Discussion of water absorption and uptake of mineral salts in plants	• Photographs of monocotyledonous and dicotyledonous stem sections showing the xylem • Chart on the stem sections • Chart on roots, roots hairs and section of roots • Photographs of roots and root hairs	• Comprehensive secondary Biology students Bk. 2 page 2-5 • Teachers bk. 2 pages 1-13 • KLB secondary Biology • Students book 2 Page 7-9 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 2-8 • Golden tips biology pages 54-56 • Gateway secondary Biology pages 84-85 • Longman biology page 54	

3	1	TRANSPORT IN PLANTS	Internal tissues of the stem	By the end of the lesson, the learner should be able to: • Draw the monocotyledonous and dicotyledonous stem sections • Define the term transpiration and relate the structure of xylem to its role in transpiration	• Defining transpiration • Discussion on the structure of the xylem to its function • Drawing the stem section	• Photographs of monocotyledonous and dicotyledonous stem sections showing the xylem • Chart on the stem sections	• Comprehensive secondary Biology students Bk. 2 page 6-7 • Teachers bk. 2 pages 1-13 • KLB secondary Biology • Students book 2 Page 5-7 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 4-10 • Golden tips biology pages 59 • Gateway secondary Biology pages 86-87 • Longman biology page	
	2	TRANSPORT IN PLANTS	The role of the leaf in transpiration	By the end of the lesson, the learner should be able to: • Draw and label the internal and the external structure of a leaf • Describe the functions of the leaf • Relate the parts of a leaf to their functions	• Drawing and labeling the structure of a leaf • Discussion on the parts of a leaf and how they relate to their functions	• Sample leaves of various pants • Charts on the section of a leaf	• Comprehensive secondary Biology students Bk. 2 page 7 • Teachers bk. 2 pages 1-13 • KLB secondary Biology • Students book 2 Page 9-10 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 10-12 • Golden tips biology pages 57-58 • Gateway secondary Biology pages 84 • Longman biology page 54	
	3-4	TRANSPORT IN PLANTS	Transport of water and	By the end of the lesson, the learner should be able to:	• Carrying out an experiment to demonstrate the	• Sample leaves of various pants • Charts on the	• Comprehensive secondary Biology students Bk. 2 page	

			mineral salts in plants (practical lesson)	• Demonstrate the movement of water in plants • Observe prepared leaf sections to identify vascular tissues	movement of water in plants • Observing prepared leaf section under a light microscope • Identifying vascular tissues in leaves	section of a leaf sections • microscopes	14 • Teachers bk. 2 pages 1-13 • KLB secondary Biology • Students book 2 Page 14-16 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 7	
4	1	TRANSPORT IN PLANTS	Movement of water in plants	By the end of the lesson, the learner should be able to: • Discuss the forces involved in movement of water in plants such as transpiration, pull, cohesion and adhesion capillarity and root pressures • Demonstrate the forces involved in movement of water in plants	• Describing the forces involved in movement of water in plants • Discussion on forces involved in movement of water in plants • Carrying out experiments to show the forces involved	• Tubes of different diameters • Beakers containing colored water • Fresh plant stump with fluid oozing	• Comprehensive secondary Biology students Bk. 2 page 11-12 • Teachers bk. 2 pages 1-13 • KLB secondary Biology • Students book 2 Page 11-12 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 5-6 • Golden tips biology pages 59-60 • Gateway secondary Biology pages 86-87 • Longman biology page	
	2	TRANSPORT IN PLANTS	Importance of transpiration	By the end of the lesson, the learner should be able to: • Identify the importance of transpiration in plants • Discuss the importance of transpiration in plants	• Discussion on the significance of transpiration in plants	• Wilted potted plants • Potted plants growing normally	• Comprehensive secondary Biology students Bk. 2 page 12 • Teachers bk. 2 pages 1-13 • KLB secondary Biology • Students book 2 Page 12 • KLB teachers book 2 pages 15-34	

							• Longhorn secondary biology: students book 2 page 12 • Golden tips biology pages 54 • Gateway secondary Biology pages 84 • Longman biology page	
	3-4	TRANSPORT IN PLANTS	The phloem	By the end of the lesson, the learner should be able to: • Explain what the phloem is • Draw the structure of the phloem and relate its structure to its function • List down materials translocated in the phloem	• Drawing the structure of the phloem • Discussing the functions of phloem in relation to its structure • Listing down the materials translocated in plants	• Chart on structure of the phloem • Photographs of the phloem	• Comprehensive secondary Biology students Bk. 2 page 12-14 • Teachers bk. 2 pages 1-13 • KLB secondary Biology • Students book 2 Page 1-13 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 24-26 • Golden tips biology pages 61-62 • Gateway secondary Biology pages 86 • Longman biology page	
6	1	TRANSPORT IN PLANTS	The phloem	By the end of the lesson, the learner should be able to: • Draw the structure of the phloem • Relate the parts of the phloem to its functions	• Drawing the phloem • Discussion on the functions of the parts of the phloem	• Chart of the phloem structure • Drawings of the phloem structure	• Comprehensive secondary Biology students Bk. 2 page 12 • Teachers bk. 2 pages 1-13 • KLB secondary Biology • Students book 2 Page 17-18 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 24-25	

							• Golden tips biology pages 62 • Gateway secondary Biology pages 86-87 • Longman biology page 55	
	2	TRANSPORT IN PLANTS	Function of phloem	By the end of the lesson, the learner should be able to: • Discuss the function of the phloem • List down materials translocated and the sites of storage in the phloem	• Discussion on the functions of the phloem • Listing down materials translocated and storage sites in the phloem	• Chart of the phloem structure • Photographs of the phloem	• Comprehensive secondary Biology students Bk. 2 page 12-14 • Teachers bk. 2 pages 1-13 • KLB secondary Biology • Students book 2 Page 17-18 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 24-26 • Golden tips biology pages 61-62 • Gateway secondary Biology pages 86-87 • Longman biology page 55	
	3-4	TRANSPORT IN PLANTS	Function of phloem (practical lesson)	By the end of the lesson, the learner should be able to: • Set up an experiment to investigate translocation of food substances in dicotyledonous plants • Set up an experiment to investigate translocation of food substances in a	• Setting up an experiment to investigate translocation • Explaining the processes involved in the translocation of food in plants • Discussion on the result of the experiment	• A young plant • Sharp knife • Saplings	• Comprehensive secondary Biology students Bk. 2 page 14 • Teachers bk. 2 pages 1-13 • KLB secondary Biology • Students book 2 Page 12-14 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 25-26 • Golden tips biology pages 62 • Gateway secondary	

				monocotyledonous plant • Explain the processes involved in the translocation of food in plants			Biology pages 86-87 • Longman biology page	
7	1-2	TRANSPORT IN ANIMALS	Introduction Transport in unicellular animals	By the end of the lesson, the learner should be able to: • Identify unicellular organisms such as amoeba • Describe transport of substances in unicellular organisms • Explain the necessity of an elaborate transport system in most animals	• Identify some unicellular organisms such as amoeba • Explaining transport in unicellular organisms • Explaining the need for an elaborate transport system in most animals	• Chart showing movement of gasses in and out of an amoeba by diffusion	• Comprehensive secondary Biology students Bk. 2 page 21 • Teachers bk. 2 pages 1-13 • KLB secondary Biology • Students book 2 Page 18 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 26 • Golden tips biology pages 63 • Gateway secondary Biology pages 88 • Longman biology page 55-56	
	3-4	TRANSPORT IN ANIMALS	Open circulatory system	By the end of the lesson, the learner should be able to: • Define an open circulatory system • Discuss the open circulatory system • Draw the open circulatory system of an insect	• Explaining open circulatory system in insects • Discussing the open circulatory system • Drawing the open circulatory system of an insect • Labeling the open	• Chart showing the circulatory system of a cockroach	• Comprehensive secondary Biology students Bk. 2 page 21 • Teachers bk. 2 pages 14-25 • KLB secondary Biology • Students book 2 Page 18-20 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 26-27 • Golden tips biology	

					circulatory system		pages 63-64 • Gateway secondary Biology pages 88 • Longman biology page	
8	1	TRANSPORT IN ANIMALS	Closed circulatory system	By the end of the lesson, the learner should be able to: • Define an closed transport system • Identify animals with the open circulatory system • Distinguish between closed and open circulatory systems	• Defining closed circulatory systems • Stating organisms with closed circulatory systems such as human beings • Distinguishing between closed and open circulatory systems	• Chart showing closed circulatory system • Chart showing the difference between closed circulatory system and open circulatory system	• Comprehensive secondary Biology students Bk. 2 page 22-23 • Teachers bk. 2 pages 14-25 • KLB secondary Biology • Students book 2 Page 19-20 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 26-27 • Golden tips biology pages 64-65 • Gateway secondary Biology pages 88-89 • Longman biology page 55-56	
	2-3	TRANSPORT IN ANIMALS	Double circulatory system	By the end of the lesson, the learner should be able to: • Define an Double circulatory system • Draw and label circulatory systems in mammals • Dissect a rabbit and observe its transport system	• Discussing the Double circulatory system • Observing the transport system in a rabbit • Drawing the double circulatory system of a mammal	• Chart showing the circulatory system of a mammal • Dissected rabbit displaying the circulatory system	• Comprehensive secondary Biology students Bk. 2 page 24-42-44 • Teachers bk. 2 pages 14-25 • KLB secondary Biology • Students book 2 Page 19-20 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 28-34 • Golden tips biology pages 64-65 • Gateway secondary Biology pages 88-89	

							• Longman biology page 56 • High flyer series pages 30-32	
	4	CONTINOUS ASSESMENT TEST	Topics covered so far	By the end of the lesson, the learner should be able to answer the given questions in the test	• Learner to answer questions • Teacher to supervise the test	• Question paper • Marking scheme		
9	1	TRANSPORT IN ANIMALS	The mammalian heart	By the end of the lesson, the learner should be able to: • Draw and label the external parts of the mammalian heart • Draw and label the internal structure of the mammalian heart • Explain the functions of the heart • Relate the structure of the heart to its functions	• Drawing and labeling the mammalian heart and relating its structure to its functions • Discussing the structure of the mammalian heart	• Chart showing the structure of a mammalian heart • Model of a heart	• Comprehensive secondary Biology students Bk. 2 page 24-25 • Teachers bk. 2 pages 14-25 • KLB secondary Biology • Students book 2 Page 21-23 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 28-32 • Golden tips biology pages 65-66 • Gateway secondary Biology pages 89 • Longman biology page • High flyer series pages	
	2	TRANSPORT IN ANIMALS	Blood flow in the circulatory system of mammals	By the end of the lesson, the learner should be able to: • Trace the path taken by blood from the heart to the body parts and back to the heart • State the substances	• Discussing the blood flow in mammals • Tracing the path taken by blood from the heart to all body parts and back to the heart	• Chart showing the path of blood flow in the circulatory system of a mammal	• Comprehensive secondary Biology students Bk. 2 page 25-26 • Teachers bk. 2 pages 14-25 • KLB secondary Biology • Students book 2 Page 19-20 • KLB teachers book 2	

				supported by the blood of mammals • Describe the flow of oxygenated blood in and out of the body through the heart			pages 15-34 • Longhorn secondary biology: students book 2 page 31-32 • Golden tips biology pages 65-67 • Gateway secondary Biology pages 88-90 • Longman biology page 56 • High flyer series pages	
	3-4	TRANSPORT IN ANIMALS	Blood vessels	By the end of the lesson, the learner should be able to: • Explain the structure of arteries, veins and capillaries • Relate the structure of the arteries, veins and capillaries to their function	• Explaining and relating the structure to their functions • Drawing the arteries, veins and capillaries • Making medals of blood vessels	• Chart showing arteries, veins, and capillaries • Modes of blood vessels • Different colours of Plasticine	• Comprehensive secondary Biology students Bk. 2 page 29-31 • Teachers bk. 2 pages 14-25 • KLB secondary Biology • Students book 2 Page 25-30 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 33-43 • Golden tips biology pages 67-68 • Gateway secondary Biology pages 88-90 • Longman biology page 56 • High flyer series pages	
10	1	TRANSPORT IN ANIMALS	Diseases and defects of the circulatory system	By the end of the lesson, the learner should be able to: • Name the common diseases of circulatory system such as thrombosis, varicose veins	• Name the diseases of the circulatory system • Suggest methods of control/prevention	• Resource person such as the school nurse • Photographs of people suffering from diseases of the circulatory system	• Comprehensive secondary Biology students Bk. 2 page 32-33 • Teachers bk. 2 pages 14-15 • KLB secondary Biology • Students book 2 Page 31-32	

				• Suggest methods of control/prevention for the diseases.			• KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 43-45 • Golden tips biology pages 73-74 • Gateway secondary Biology pages 92-93 • Longman biology page 57 • High flyer series pages	
	2	TRANSPORT IN ANIMALS	The structure and function of the blood	By the end of the lesson, the learner should be able to: • List the components of the blood • State the functions of each of the blood components	• Listing components of blood • Relating blood components to their functions • Modeling red blood cells (RBC)	• Resource person such as the school nurse • Model RBCs using Plasticine	• Comprehensive secondary Biology students Bk. 2 page 33-37 • Teachers bk. 2 pages 14-25 • KLB secondary Biology • Students book 2 Page 32-35 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 45-50 • Golden tips biology pages 69-71 • Gateway secondary Biology pages 90 • Longman biology page 58-59 • High flyer series pages	
	3-4	TRANSPORT IN ANIMALS	The structure and function of the blood	By the end of the lesson, the learner should be able to: • Explain how oxygen and carbon dioxide are transported in the blood	• Explaining how oxygen and carbon dioxide are transported in the blood • Describing the mechanisms of blood clotting and its	• Resource person such as the school nurse • Chart showing blood clotting mechanism	• Comprehensive secondary Biology students Bk. 2 page 34-35 • Teachers bk. 2 pages 14-25 • KLB secondary Biology • Students book 2	

				• Describe the mechanisms of blood clotting and its importance	• importance •		Page 36-38 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 45-51 • Golden tips biology pages 70-71 • Gateway secondary Biology pages 90 • Longman biology page • High flyer series pages	
11	1	TRANSPORT IN ANIMALS	Blood grouping and blood transfusion	By the end of the lesson, the learner should be able to: • Describe the human blood group system • State the importance of blood groups in blood transfusion	• Describing blood groups • Stating the importance of human blood groups in blood transfusion • Playing cards/bottle tops in pairs •	• Resource person such as the school nurse • Chart showing blood groups and possible transfusions • Prepared cards/bottle tops	• Comprehensive secondary Biology students Bk. 2 page 37-38 • Teachers bk. 2 pages 14-25 • KLB secondary Biology • Students book 2 Page 36-38 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 51-54 • Golden tips biology pages 72-73 • Gateway secondary Biology pages 90-91 • Longman biology page 56 • High flyer series pages	
	2	TRANSPORT IN ANIMALS	Blood grouping and blood transfusion	By the end of the lesson, the learner should be able to: • Discuss the rhesus factor • State the role of the rhesus factor in blood	• Discussing the rhesus factor and its role in blood transfusion •	• Resource person such as the school nurse • Blood transfusion personnel	• Comprehensive secondary Biology students Bk. 2 page 38-39 • Teachers bk. 2 pages 14-25 • KLB secondary Biology	

				transfusion			• Students book 2 Page 37-39 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 52-55 • Golden tips biology pages 72-73 • Gateway secondary Biology pages 92 • Longman biology page 59 • High flyer series pages	
	3-4	TRANSPORT IN ANIMALS	The structure of the heart (practical lesson)	By the end of the lesson, the learner should be able to: • Examine the external and internal structure of a cows heart • Investigate pulse rate at the wrist	• Examining a mammalian heart structure and identifying various parts • Working in pairs to examine pulse rate before and after vigorous activities •	• Fresh heart of a mammal such as a cow • Dissecting kit • Hand lens • Stop watch	• Comprehensive secondary Biology students Bk. 2 page 44-45 • Teachers bk. 2 pages 14-25 • KLB secondary Biology • Students book 2 Page 30-31 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 28 • Golden tips biology pages 66 • Gateway secondary Biology pages 89 • Longman biology page 59 • High flyer series pages	
12	1	TRANSPORT IN ANIMALS	Immune responses	By the end of the lesson, the learner should be able to: • Defining immunity • Describe immune	• Defining immunity • Describing immune responses • Distinguishing between	• Chart showing types of immunity	• Comprehensive secondary Biology students Bk. 2 page 39-41 • Teachers bk. 2 pages 14-25 • KLB secondary	

				response • Differentiate between natural and artificial immunity	natural and artificial immunity		Biology • Students book 2 Page 40-41 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 56-58 • Golden tips biology pages 74-75 • Gateway secondary Biology pages 93 • Longman biology page • High flyer series pages	
	2	TRANSPORT IN ANIMALS	vaccination	By the end of the lesson, the learner should be able to: • Define vaccination • Describe importance of vaccination against diseases such as tuberculosis, poliomyelitis, measles, diphtheria, whooping cough	• Defining vaccination • Describing the importance of vaccination • Drawing the vaccination table	• Chart showing the vaccination table	• Comprehensive secondary Biology students Bk. 2 page 40-41 • Teachers bk. 2 pages 14-25 • KLB secondary Biology • Students book 2 Page 41-43 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 58-59 • Golden tips biology pages 75-76 • Gateway secondary Biology pages 93-94 • Longman biology page • High flyer series pages	
	3-4	TRANSPORT IN ANIMALS	Allergic reactions	By the end of the lesson, the learner should be able to: • Define allergic reactions and explain their	• Defining allergic reactions and explaining their causes • Carrying out an	• School nurse • Rubber bands • Bandages or handkerchiefs	• Comprehensive secondary Biology students Bk. 2 page 41-42-45 • Teachers bk. 2 pages 14-25	

				causes • Carry out an experiment to demonstrate the unidirectional flow of blood in the cutaneous veins of the forearm	experiment to demonstrate the unidirectional flow of blood in the cutaneous veins		• KLB secondary Biology • Students book 2 Page 43 • KLB teachers book 2 pages 15-34 • Longhorn secondary biology: students book 2 page 58 • Golden tips biology pages 76-77 • Gateway secondary Biology pages 93-94 • Longman biology page59-60 • High flyer series pages	
13	**REVISION AND END OF TERM EXAMINATIONS**							

BIOLOGY FORM 2 SCHEMES OF WORK – TERM 2								
WEEK	**LESSON**	**TOPIC**	**SUB - TOPIC**	**OBJECTIVES**	**LEARNING/ TEACHING ACTIVITIES**	**LEARNING/ TEACHING RESOURCES**	**REFERENCES**	**REMARKS**
1	1	GASEOUS EXCHANGE IN PLANTS	Definition and importance of gaseous exchange	By the end of the lesson, the learner should be able to: • Define gaseous exchange • Identify the gases that are exchanged in the living	• Defining gaseous exchange • state the gases that are exchanged in the living organisms such as	• charts on the importance of gaseous exchange in organisms	• Comprehensive secondary Biology students Bk. 2 page 48 • Teachers bk. 2 pages 26-33 • KLB secondary Biology • Students book 2 Page 48-50	

				organism • Explain the importance of gaseous exchange in organisms	oxygen and carbon dioxide • discussion on the importance of gaseous exchange in organisms		• KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 70 • Golden tips biology pages 79 • Gateway secondary Biology pages 113 • Longman biology page 62 • High flyer series pages 36	
	2	GASEOUS EXCHANGE IN PLANTS	Gaseous exchange in the stomata	By the end of the lesson, the learner should be able to: • Describe the stomata • Draw and label open and closed stomata • Explain stomata and gaseous exchange	• Describing the parts of the stomata • Drawing and labeling of open and closed stoma • Discussion on stomatal gaseous exchange	• Chart showing open and closed stomata	• Comprehensive secondary Biology students Bk. 2 page 48-49 • Teachers bk. 2 pages • KLB secondary Biology • Students book 2 Page 48-51 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 70-74 • Golden tips biology pages 79-80 • Gateway secondary Biology pages 114 • Longman biology page 62 • High flyer series pages	
	3-4	GASEOUS EXCHANGE IN PLANTS	Stomata (practical lesson)	By the end of the lesson, the learner should be able to: • Investigate the presence	• Investigating the presence of stomata on leaves in groups	• Water in a beaker • Leaves of various leaves • Means of	• Comprehensive secondary Biology students Bk. 2 page 54 • Teachers bk. 2	

				of stomata on leaves • Investigate the shape of guard cells and the distribution of stomata on leaves	• Investigating the shape of guard cells • Discussion on the distribution of stomata on leaves of various plants	heating • Clear nail varnish • Light microscope • Cover slip • Forceps • Microscope slide • Leaves of various plants	pages 26-33 • KLB secondary Biology • Students book 2 Page 48-50 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 76 • Golden tips biology pages • Gateway secondary Biology pages 114 • Longman biology page • High flyer series pages	
2	1	GASEOUS EXCHANGE IN PLANTS	Mechanism of opening and closing stomata	By the end of the lesson, the learner should be able to: • Explain the mechanism of opening and closing of stomata • Describe photosynthetic/glucose accumulation theory of opening and closing stomata	• Explaining the mechanism of opening and closing of stomata • Discussion on the photosynthetic/glucose accumulation theory of opening and closing stomata	• Chart showing open and closed stomata	• Comprehensive secondary Biology students Bk. 2 page 49-50 • Teachers bk. 2 pages 26-33 • KLB secondary Biology • Students book 2 Page 50-51 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 71-74 • Golden tips biology pages 79-80 • Gateway secondary Biology pages 114 • Longman biology page 62 • High flyer series pages	

	2	GASEOUS EXCHANGE IN PLANTS	Mechanism of opening and closing stomata	By the end of the lesson, the learner should be able to: • Describe inter-conversion of starch and glucose and ion accumulation theories	• Discussion on the inter-conversion of starch and glucose and ion accumulation theories	• Chart showing open and closed stomata	• Comprehensive secondary Biology students Bk. 2 page 50 • Teachers bk. 2 pages 26-33 • KLB secondary Biology • Students book 2 Page 50-51 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 76 • Golden tips biology pages 79-80 • Gateway secondary Biology pages 114 • Longman biology page • High flyer series pages	
	3-4	GASEOUS EXCHANGE IN PLANTS	Internal structure of stems and leaves (practical lessons)	By the end of the lesson, the learner should be able to: • Investigate the internal structure of stems and leaf stalk in aerial and aquatic plants • Investigate tissue distribution in aerial leaves and stems	• Investigation of the structure of stems and leaf stalks in aerial and aquatic plants	• Microscope • Prepared permanent slides of aerial leaves and stems • Water lily leaf stalk • Bougainvillea twig • Beaker containing water • scalpel	• Comprehensive secondary Biology students Bk. 2 page 55 • Teachers bk. 2 pages 26-33 • KLB secondary Biology • Students book 2 Page 50-52 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 75-76 • Golden tips biology pages • Gateway secondary Biology	

							pages • Longman biology page 62 • High flyer series pages	
3	1	GASEOUS EXCHANGE IN PLANTS	Cuticular and lenticular gaseous exchange	By the end of the lesson, the learner should be able to describe Cuticular and lenticular gaseous exchange	• Discussion on lenticular gaseous exchange • Discussion on Cuticular gaseous exchange	• Chart showing internal leaf structure and lenticels	• Comprehensive secondary Biology students Bk. 2 page 52 • Teachers bk. 2 pages 26-33 • KLB secondary Biology • Students book 2 Page 51-53 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 75 • Golden tips biology pages 81 • Gateway secondary Biology pages 114-115 • Longman biology page 62-64 • High flyer series pages 36-37	
	2	GASEOUS EXCHANGE IN PLANTS	gaseous exchange through the roots	By the end of the lesson, the learner should be able to; • Draw the structure of the root • Describe how gaseous exchange takes place through the epidermis of the roots	• Drawing the structure of the root • Discussion on gaseous exchange through the roots	• Photograph of pneumatophic • Chart showing breathing roots	• Comprehensive secondary Biology students Bk. 2 page 52-54 • Teachers bk. 2 pages 26-33 • KLB secondary Biology • Students book 2 Page 48-52 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2	

							page 74-75 • Golden tips biology pages 81-82 • Gateway secondary Biology pages 113-114 • Longman biology page • High flyer series pages	
	3-4	GASEOUS EXCHANGE IN PLANTS	gaseous exchange structures	By the end of the lesson, the learner should be able to; • Examine various types of gaseous exchange structure in different organisms • Relate the various types of gaseous exchange structure to their functions in different organisms	• Examining various types of gaseous exchange structures • Relating the various types of gaseous exchange structure to their functions in different organisms	• Tadpoles • Insects (alive) • Fish • Frog • earthworm	• Comprehensive secondary Biology students Bk. 2 page 57 • Teachers bk. 2 pages 34-48 • KLB secondary Biology • Students book 2 Page 58-61 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 80-81 • Golden tips biology pages 82 • Gateway secondary Biology pages 115 • Longman biology page • High flyer series pages	
4	1	GASEOUS EXCHANGE IN ANIMALS	Gaseous exchange types and characteristics of respiratory surfaces in animals	By the end of the lesson, the learner should be able to; • State the characteristics of gaseous exchange surfaces in different organisms	• Discussion on characteristics of gaseous exchange surfaces • Discussion on mechanism of gaseous exchange surfaces	• Chart showing diagrams of different gaseous exchange surfaces such as insects fish, frogs and earth worms • Chart showing	• Comprehensive secondary Biology students Bk. 2 page 57-58 • Teachers bk. 2 pages 34-48 • KLB secondary Biology • Students book 2 Page 53	

					• Discussion on mechanism of gaseous exchange in amoeba	diagram on gaseous exchange in amoeba	• KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 80 • Golden tips biology pages 82-83 • Gateway secondary Biology pages 115 • Longman biology page 65 • High flyer series pages	
	2-3	GASEOUS EXCHANGE IN ANIMALS	gaseous exchange in an insect	By the end of the lesson, the learner should be able to; • Examine the gaseous exchange structures of a grasshopper or a locust • Draw the gaseous exchange structure of an insect	• Examining the gaseous exchange structures in insects • Drawing the gaseous exchange structure of an insect	• Chart on tracheal system in insects • Live grasshoppers • Dissecting board • Pins • Hand lens • Dissecting kit • Chloroform • Cotton wool	• Comprehensive secondary Biology students Bk. 2 page 58 • Teachers bk. 2 pages 34-48 • KLB secondary Biology • Students book 2 Page 54-56 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 81-84 • Golden tips biology pages 83 • Gateway secondary Biology pages 115-116 • Longman biology page 64 • High flyer series pages 37-38	
	4	GASEOUS EXCHANGE IN ANIMALS	Continuous assessment test	By the end of the lesson, the learner should be able to answer all questions asked in the test	• Learner to write down the answers • Teacher to supervise	• Question papers • Marking scheme	•	

		& PLANTS			test			
5	1	GASEOUS EXCHANGE IN ANIMALS	gaseous exchange in bony fish	By the end of the lesson, the learner should be able to; • Draw and label the structure of gaseous exchange in bony fish • Relate the gills to their function	• discussion on gills of a bony fish • drawing and labeling the gill chamber and gills of bony fish • discussion on functions of parts of the gills	• Chart showing diagram of gill chamber of bony fish	• Comprehensive secondary Biology students Bk. 2 page 59-60 • Teachers bk. 2 pages 34-48 • KLB secondary Biology • Students book 2 Page 56-58 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 84-88 • Golden tips biology pages 84 • Gateway secondary Biology pages 116-117 • Longman biology page • High flyer series pages	
	2	GASEOUS EXCHANGE IN ANIMALS	Gaseous exchange in bony fish	By the end of the lesson, the learner should be able to describe the mechanism of gaseous exchange in bony fish	• Discussion on the mechanism of gaseous exchange in bony fish	• Chart showing diagram of gill chamber of bony fish	• Comprehensive secondary Biology students Bk. 2 page 60-61 • Teachers bk. 2 pages 34-48 • KLB secondary Biology • Students book 2 Page 57-58 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 84 • Golden tips biology pages 84	

							• Gateway secondary Biology pages 116-117 • Longman biology page • High flyer series pages 38	
	3-4	GASEOUS EXCHANGE IN ANIMALS	Gaseous exchange in bony fish (practical lesson)	By the end of the lesson, the learner should be able to: • Examine the location and number of gills in gill chambers of bony fish • Examine, draw and label the gill of a bony fish	• Examining the location and number of gills in gill chambers of bony fish • Examining, drawing and labeling isolated gills in bony fish	• Tilapia fish • Hand lens • Gills of a bony fish • Dissecting kit • Pins • Dissecting board	• Comprehensive secondary Biology students Bk. 2 page 69 • Teachers bk. 2 pages 34-48 • KLB secondary Biology • Students book 2 Page 58 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 84-85 • Golden tips biology pages 84 • Gateway secondary Biology pages 116 • Longman biology page • High flyer series pages	
6	1	GASEOUS EXCHANGE IN ANIMALS	gaseous exchange in frogs	By the end of the lesson, the learner should be able to describe the gaseous exchange I a frog through its gills, skin, mouth and lungs.	• Discussion on gaseous exchange in a frog	• Chart showing position of mouth cavity, lungs and nostrils in a frog	• Comprehensive secondary Biology students Bk. 2 page 61-62 • Teachers bk. 2 pages 34-48 • KLB secondary Biology • Students book 2 Page 58-59 • KLB teachers book 2 pages 35-44 • Longhorn	

							secondary biology: students book 2 page 88-90 • Golden tips biology pages 84-85 • Gateway secondary Biology pages 117 • Longman biology page 65-66 • High flyer series pages	
	2	GASEOUS EXCHANGE IN ANIMALS	gaseous exchange in human beings	By the end of the lesson, the learner should be able to: • State the structure involved in gaseous exchange in human beings • Explain the features of the structures involved in gaseous exchange in human beings • Draw and label the structures involved in gaseous exchange in human beings	• Stating the structures involved in gaseous exchange in human beings • Explaining the features of the structures involved in gaseous exchange in human beings • Drawing and labeling the structures involved in gaseous exchange in humans	• Chart showing the lungs and rib cage in human beings	• Comprehensive secondary Biology students Bk. 2 page 63-65 • Teachers bk. 2 pages 34-48 • KLB secondary Biology • Students book 2 Page 59-64 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 90-94 • Golden tips biology pages 85-86 • Gateway secondary Biology pages 117-118 • Longman biology page 66 • High flyer series pages 38-39	
6	3-4	GASEOUS EXCHANGE IN ANIMALS	gaseous exchange in human beings	By the end of the lesson, the learner should be able to: • Examine a dissected mammal to locate the gaseous	• Identifying the structures of gaseous exchange in a dissected rabbit (mammal) • Discussion on mechanism of	• Chart showing the lungs and rib cage in human beings • Dissected rabbit displaying the gaseous exchange	• Comprehensive secondary Biology students Bk. 2 page 64 • Teachers bk. 2 pages 34-48 • KLB secondary Biology	

				exchange structures • Describe the mechanism of breathing in human beings	breathing in human beings	system	• Students book 2 Page 59-64 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 94-97 • Golden tips biology pages 86 • Gateway secondary Biology pages 119 • Longman biology page • High flyer series pages 38-39	
7	1-2	GASEOUS EXCHANGE IN ANIMALS	Breathing mechanisms in human beings	By the end of the lesson, the learner should be able to: • Draw and label the alveoli where gaseous exchange occur in human beings • Describe how gaseous exchange occurs in alveoli	• Drawing and labeling the alveoli where gaseous exchange occur in human beings • Describing how gaseous exchange occurs in alveoli • Discussion on gaseous exchange at the alveoli	• Chart showing the exchange of gases in alveoli of human beings	• Comprehensive secondary Biology students Bk. 2 page 66 • Teachers bk. 2 pages 34-48 • KLB secondary Biology • Students book 2 Page 61-65 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 96-99 • Golden tips biology pages 86-87 • Gateway secondary Biology pages 119-120 • Longman biology page 67 • High flyer series pages 38-39	
	3-4	GASEOUS EXCHAN	Continuous assessment test	By the end of the lesson, the learner should be able to	• Learners to write down the answers	• Question papers • Marking scheme	•	

		GE IN ANIMALS AND PLANTS		• Answer all questions asked in the test	to the questions • Teacher to supervise the students			
8	1-2	GASEOUS EXCHANGE IN ANIMALS	Gaseous exchange in human beings	By the end of the lesson, the learner should be able to: • Explain how human beings are adapted to their functions • Able to examine the mammalian lung	• Explaining how human beings are adapted to their functions • Discussion on the adaptations of lungs in humans and examination of mammalian lung	• Lungs from a mammal eg. goat, sheep and cow	• Comprehensive secondary Biology students Bk. 2 page 66 • Teachers bk. 2 pages 34-48 • KLB secondary Biology • Students book 2 Page 59-65 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page • Golden tips biology pages 86-87 • Gateway secondary Biology pages 120 • Longman biology page 66-67 • High flyer series pages 38-39	
	3-4	GASEOUS EXCHANGE IN ANIMALS	Gaseous exchange in mammals (practical lesson)	By the end of the lesson, the learner should be able to: • Demonstrate the breathing mechanism of the lungs and diaphragm in a model thoracic cavity • Demonstrate the breathing movement of ribs and	• Carrying out a demonstration of breathing mechanism in human beings using a model	• A bell jar • Two balloons • Rubber stopper with a hole • Y-shape glass tube • Rubber sheet • String • Petroleum jelly	• Comprehensive secondary Biology students Bk. 2 page 71 • Teachers bk. 2 pages 34-48 • KLB secondary Biology • Students book 2 Page 63 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology:	

				muscles by using a model			students book 2 page 96-99 • Golden tips biology pages 86-87 • Gateway secondary Biology pages 117-119 • Longman biology page • High flyer series pages	
9	1	GASEOUS EXCHANGE IN ANIMALS	Factors affecting the rate of breathing	By the end of the lesson, the learner should be able to: • Examine the factors affecting the rate of breathing in human beings • Explain the factors which control the rate of breathing in human beings	• Examining the factors affecting the rate of breathing in human beings • Discussion on factors affecting the rate of breathing in human beings	• Chart with table showing factors affecting breathing	• Comprehensive secondary Biology students Bk. 2 page 66-67 • Teachers bk. 2 pages 34-48 • KLB secondary Biology • Students book 2 Page 65-66 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 101-102 • Golden tips biology pages 87 • Gateway secondary Biology pages 119 • Longman biology page 67-68 • High flyer series pages	
	2	GASEOUS EXCHANGE IN ANIMALS	Respiratory diseases	By the end of the lesson, the learner should be able to: • State the causes of respiratory diseases • Discuss the symptoms of	• Discussion on causes, symptoms and prevention measures of respiratory diseases	• Chart on respiratory diseases	• Comprehensive secondary Biology students Bk. 2 page 71 • Teachers bk. 2 pages 34-48 • KLB secondary Biology • Students book 2	

				respiratory disease • explain the prevention measures of respiratory diseases			Page 67-70 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 104-107 • Golden tips biology pages 87-88 • Gateway secondary Biology pages 121 • Longman biology page 68 • High flyer series pages	
	3-4	GASEOUS EXCHANGE IN ANIMALS	Gaseous exchange in animals (practical lesson)	By the end of the lesson, the learner should be able to demonstrate the effect of exercise on the rate of breathing	• Carrying out experiment to show the effect of exercise on rate of breathing	• Chair • Stop watch • Skipping rope	• Comprehensive secondary Biology students Bk. 2 page 74 • Teachers bk. 2 pages 34-48 • KLB secondary Biology • Students book 2 Page 66-67 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 101-104 • Golden tips biology pages • Gateway secondary Biology pages • Longman biology page • High flyer series pages	
10	1	RESPIRATION	Introduction Tissue	By the end of the lesson, the learner should be able to: • Define	• Discussion on definition and significance of respiration	• Chart showing diagram of mitochondria	• Comprehensive secondary Biology students Bk. 2 page 74	

			respiration	respiration • State the significance of respiration • Draw and label mitochondria	• Drawing and labeling mitochondria		• Teachers bk. 2 pages 49-57 • KLB secondary Biology • Students book 2 Page 73-74 • KLB teachers book 2 pages 45-48 • Longhorn secondary biology: students book 2 page 112-113 • Golden tips biology pages 91 • Gateway secondary Biology pages 130 • Longman biology page 71 • High flyer series pages	
	2	RESPIRATION	Anaerobic respiration	By the end of the lesson, the learner should be able to: • Define Anaerobic respiration • Describe Anaerobic respiration in plants • Describe Anaerobic respiration in animals	• Defining Anaerobic respiration • Discussion on Anaerobic respiration in plants and animals	• Chart showing diagram of mitochondria	• Comprehensive secondary Biology students Bk. 2 page 76-77 • Teachers bk. 2 pages 49-57 • KLB secondary Biology • Students book 2 Page 77-78 • KLB teachers book 2 pages 45-48 • Longhorn secondary biology: students book 2 page 116-119 • Golden tips biology pages 92-93 • Gateway secondary Biology pages 131 • Longman biology page 72 • High flyer series	

							pages 41-42	
	3-4	RESPIRATION	Respiration (practical lesson)	By the end of the lesson, the learner should be able to: • Identify the gas given off when food is burnt • Investigate the gas produced during fermentation	• Carrying out experiments to investigate the gas produced when food is burnt • Discussion on the gas produced when food is burnt	• Retort stand • Maize flour • Test-tubes • Source of heat • Boiling tubes • Delivery tube • Rubber stopper • Lime water • clump	• Comprehensive secondary Biology students Bk. 2 page 80-81 • Teachers bk. 2 pages 49-57 • KLB secondary Biology • Students book 2 Page 75-74 • KLB teachers book 2 pages 45-48 • Longhorn secondary biology: students book 2 page 116-118, 120-121 • Golden tips biology pages • Gateway secondary Biology pages • Longman biology page • High flyer series pages	
11	1-2	RESPIRATION	Economic importance of anaerobic respiration	By the end of the lesson, the learner should be able to: • State the economic importance of anaerobic respiration • Discuss the economic importance of anaerobic respiration in both plants and animals	• Discussion on economic importance of anaerobic respiration	• Chart on the economic importance of anaerobic respiration	• Comprehensive secondary Biology students Bk. 2 page 77 • Teachers bk. 2 pages 49-57 • KLB secondary Biology • Students book 2 Page 77-78 • KLB teachers book 2 pages 45-48 • Longhorn secondary biology: students book 2 page 119-120 • Golden tips biology pages 92-93	

							• Gateway secondary Biology pages 130 • Longman biology page 71 • High flyer series pages 41	
	3-4	RESPIRATION	Aerobic respiration	By the end of the lesson, the learner should be able to: • Explain anaerobic respiration • Distinguish between anaerobic and aerobic respiration • Compare energy production in anaerobic and aerobic respiration	• explain aerobic respiration • Distinguishing between aerobic respiration and anaerobic respiration • Discussion on energy formation and energy output in aerobic and anaerobic respiration	• Chart on the economic importance of aerobic respiration	• Comprehensive secondary Biology students Bk. 2 page 74-76 • Teachers bk. 2 pages 49-57 • KLB secondary Biology • Students book 2 Page 74-76 • KLB teachers book 2 pages 45-48 • Longhorn secondary biology: students book 2 page 113-115 • Golden tips biology pages 91-92 • Gateway secondary Biology pages 130-131 • Longman biology page 72-73 • High flyer series pages 41	
12	1-2	RESPIRATION	Tissue respiration (practical lesson)	By the end of the lesson, the learner should be able to: • Investigate the production of heat by germinating seeds • Demonstrate that respiration takes place in	• Carrying out the various experiments in groups • Discussion on the observation or results observed	• Two vacuum flasks • Two thermometers • Beans and cotton wool • Sterilizer such as formalin • Bell jar • Soda lime • Two conical flasks • Black cloth	• Comprehensive secondary Biology students Bk. 2 page 81-82 • Teachers bk. 2 pages 49-57 • KLB secondary Biology • Students book 2 Page 76-77 • KLB teachers book 2 pages 45-48 • Longhorn	

				plants		• Lime water • Potted plant • Delivery tube • Filter pump • Corks • Petroleum jelly	secondary biology: students book 2 page 115 • Golden tips biology pages 94 • Gateway secondary Biology pages • Longman biology page • High flyer series pages	
	3-4	RESPIRATION	Tissue respiration (practical lesson)	By the end of the lesson, the learner should be able to: • Show aerobic respiration in animals • Show the aerobic respiration takes place in animals	• Carrying out the experiments • Discussion on the results observed	• Grasshopper • Two pieces of insulin cloth or wire net • Bicarbonate indicator • Two conical flasks • Measuring cylinder • Two rubber bands • Two labels • Bell jar • Lime water • Delivery tubes • Soda lime • Rat • Filter pump • Petroleum jelly	• Comprehensive secondary Biology students Bk. 2 page 83-84 • Teachers bk. 2 pages 49-57 • KLB secondary Biology • Students book 2 Page 78 • KLB teachers book 2 pages 45-48 • Longhorn secondary biology: students book 2 page 117 • Golden tips biology pages 94 • Gateway secondary Biology pages • Longman biology page • High flyer series pages	
13	**REVISION AND END OF TERM EXAMINATION**							

BIOLOGY FORM 2 SCHEMES OF WORK – TERM 3								
WEEK	**LESSON**	**TOPIC**	**SUB - TOPIC**	**OBJECTIVES**	**LEARNING/ TEACHING ACTIVITIES**	**LEARNING/ TEACHING RESOURCES**	**REFERENCES**	**REMARKS**
1	1	EXCRETION AND HOMEOSTASIS	Definition of terms	By the end of the lesson, the learner should be able to: • Define terms stated • Distinguish between excretion and egestion • Explain the necessity of excretion in plants and animals	• Defining excretion, homeostasis and secretion • Distinguishing between excretion and egestion • Explaining the necessity of excretion in plants and animals	• Chart showing major terms and their definitions	• Comprehensive secondary Biology students Bk. 2 page 86 • Teachers bk. 2 pages 58-68 • KLB secondary Biology • Students book 2 Page 83-84 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page 124	

							• Golden tips biology pages 96 • Gateway secondary Biology pages 141 • Longman biology page 75 • High flyer series pages 44	
	2	EXCRETION AND HOMEOSTASIS	Excretion in plants	By the end of the lesson, the learner should be able to: • Describe the methods of excretion in plants • List down useful and harmful excretory products in plants	• Describing the methods of excretion in plants • Listing excretory products in plants	• Chart showing excretory products in plants and methods of excretion in plants	• Comprehensive secondary Biology students Bk. 2 page 86-87 • Teachers bk. 2 pages 58-68 • KLB secondary Biology • Students book 2 Page 83-84 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page 124-125 • Golden tips biology pages 96-97 • Gateway secondary Biology pages 141 • Longman biology page 75-76 • High flyer series pages 44	
	3-4	EXCRETION AND HOMEOSTASIS	Excretion in plants	By the end of the lesson, the learner should be able to: • Identify the uses of excretory products in plants • Describe the uses of excretory	• Identifying the uses of excretory products in plants • Describing the uses of excretory products in plants	• Chart showing excretory products , sources and their economic importance in plants	• Comprehensive secondary Biology students Bk. 2 page 88 • Teachers bk. 2 pages 58-68 • KLB secondary Biology • Students book 2 Page 84 • KLB teachers book	

				products in plants			2 pages • Longhorn secondary biology: students book 2 page 125-127 • Golden tips biology pages 96-97 • Gateway secondary Biology pages 141 • Longman biology page 76 • High flyer series pages 44	
2	1	EXCRETION AND HOMEOSTASIS	Excretion and homeostasis in Animals	By the end of the lesson, the learner should be able to: • Describe excretion and homeostasis in unicellular animals such as amoeba • Draw an amoeba • Describe excretion in fresh water amoeba	• Describing excretion and homeostasis in unicellular organism such as amoeba • Drawing of amoeba • Describing the excretion of water and nitrogenous wastes in amoeba	• Chart showing an amoeba in stages of excreting water and wastes	• Comprehensive secondary Biology students Bk. 2 page 88 • Teachers bk. 2 pages 58-68 • KLB secondary Biology • Students book 2 Page 84-85 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page 127-128 • Golden tips biology pages 97-98 • Gateway secondary Biology pages 142 • Longman biology page 77 • High flyer series pages 44	
	2	EXCRETION AND HOMEOSTASIS	Excretion and homeostasis in Animals	By the end of the lesson, the learner should be able to: • Explain the need for complex	• Explaining the need for complex excretory organs • Listing the	• Chart showing the specialized organs and the main excretory	• Comprehensive secondary Biology students Bk. 2 page 88 • Teachers bk. 2 pages	

				animals for excretion • List down organs involved In excretion in animals • List down waste products released by various organs	excretory organs and substances released	products	• KLB secondary Biology • Students book 2 Page 84-87 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page 128-131 • Golden tips biology pages 98 • Gateway secondary Biology pages 142 • Longman biology page 77 • High flyer series pages 44-45	
	3-4	EXCRETION AND HOMEOSTASIS	The human kidney	By the end of the lesson, the learner should be able to: • Examine the kidney of a mammal • Draw and label the external structure of a kidney • Make a vertical section through the kidney • Identify the internal parts of the kidney	• Examining the kidney • Making a vertical section and identifying the parts of the kidney • Drawing the internal structure of the kidney	• Kidney of a mammal • Sharp knife • Chart showing section of a kidney	• Comprehensive secondary Biology students Bk. 2 page 91, 105 • Teachers bk. 2 pages • KLB secondary Biology 58-68 • Students book 2 Page 88-92 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page 132-135 • Golden tips biology pages 100-101 • Gateway secondary Biology pages 144 • Longman biology page 77 • High flyer series pages	
3	1	EXCRETIO	Functions of the	By the end of the	• Drawing and	• Chart showing	• Comprehensive	

		N AND HOMEOSTASIS	nephron	lesson, the learner should be able to: • Draw and label parts of the nephron • Relate its structure to its role in urine formation	labeling the nephron • Discussion on the structure of the nephron in relation to its function	the structure of the nephron	secondary Biology students Bk. 2 page 92-94 • Teachers bk. 2 pages • KLB secondary Biology 58-68 • Students book 2 Page 90-92 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page 135-137 • Golden tips biology pages 101-102 • Gateway secondary Biology pages 145 • Longman biology page 77 • High flyer series pages 47	
	2	EXCRETION AND HOMEOSTASIS	Neuro-endoctrine system and homeostasis	By the end of the lesson, the learner should be able to: • Identify the hormones involved in Neuro-endoctrine system and homeostasis eg insulin • Explain the process of urine formation in the kidney • Describe the role of various hormones in urine formation	• Identifying the hormones involved in Neuro-endoctrine system and homeostasis such as insulin, ADH and aldosterone I urine formation • Describing the role of insulin, ADH and aldosterone in urine formation	• Diagram of the nephron showing the movement of sodium ions and water	• Comprehensive secondary Biology students Bk. 2 page 93-94 • Teachers bk. 2 pages • KLB secondary Biology 58-68 • Students book 2 Page 97-100 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page 139-142 • Golden tips biology pages 103-104 • Gateway secondary Biology pages 145	

							• Longman biology page 78 • High flyer series pages 45-47	
	3-4	EXCRETION AND HOMEOSTASIS	Neuro-endoctrine system and homeostasis	By the end of the lesson, the learner should be able to: • Describe the components and role of Neuro-endoctrine systems • Distinguish between internal and external environments • Explain the general working of the homeostatic mechanism	• Describing the components and role of the Neuro-endoctrine system • Distinguishing between internal and external environment • explaining the general working of the homeostatic mechanism	• Flow chart showing homeostatic mechanism, positive and negative feedback	• Comprehensive secondary Biology students Bk. 2 page 94-95 • Teachers bk. 2 pages • KLB secondary Biology 58-68 • Students book 2 Page 97-100 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page 139-142 • Golden tips biology pages 103-104 • Gateway secondary Biology pages 145-146 • Longman biology page 78-79 • High flyer series pages 49-51	
4	1	EXCRETION AND HOMEOSTASIS	osmoregulation	By the end of the lesson, the learner should be able to: • Define osmoregulation • Describe the role of the kidney in osmoregulation • Explain the role of hypothalamus in osmoregulatio	• Defining Osmoregulation • Describing the role of the kidney in osmoregulation	• Flow chart showing the homeostatic mechanism in regulating osmotic pressure by the kidney	• Comprehensive secondary Biology students Bk. 2 page 95-97 • Teachers bk. 2 pages 58-68 • KLB secondary Biology Students book 2 Page 100-101 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page 140-142	

				n			• Golden tips biology pages 105 • Gateway secondary Biology pages 145-146 • Longman biology page 78 • High flyer series pages 45-47	
	2-3	EXCRETION AND HOMEOSTASIS	Diabetes insipidus and other common kidney diseases	By the end of the lesson, the learner should be able to: • Explain Diabetes insipidus and other common kidney diseases • Describe the causes of Diabetes insipidus and other common kidney diseases • State possible control/prevention methods of Diabetes insipidus	• Explaining Diabetes insipidus and other common kidney diseases • Describing the causes of Diabetes insipidus and other common kidney diseases	• Chart showing the diseases, causes, symptoms and control/ prevention methods	• Comprehensive secondary Biology students Bk. 2 page 96, 101-102 • Teachers bk. 2 pages 58-68 • KLB secondary Biology Students book 2 Page 49-54 • KLB teachers book 2 pages 101, 93-94 • Longhorn secondary biology: students book 2 page 142, 138-140 • Golden tips biology pages 105, 102-103 • Gateway secondary Biology pages 147 • Longman biology page 77 • High flyer series pages 47	
	4	EXCRETION AND HOMEOSTASIS	Continuous assessment test	By the end of the lesson, the learner should be able to: • Answer all the questions asked in the test	• Learner to answer all the questions • Teacher to prepare and give the test • Teacher to supervise the students	• Question paper • Marking schemes		

5	1	EXCRETION AND HOMEOSTASIS	Excretion and homeostasis in animals	By the end of the lesson, the learner should be able to: • Draw and label parts of the skin • Relate the parts of the skin to their functions	• Discussion on the parts of the skin and their functions • Drawing and labeling parts of the skin and relating parts to their functions	• Chart showing the section of the skin	• Comprehensive secondary Biology students Bk. 2 page 89-90 • Teachers bk. 2 pages 58-68 • KLB secondary Biology Students book 2 Page 85-87 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page 129-132 • Golden tips biology pages 98-100 • Gateway secondary Biology pages 142 • Longman biology page 78 • High flyer series pages 45	
	2	EXCRETION AND HOMEOSTASIS	The role of the skin in homeostasis	By the end of the lesson, the learner should be able to: • Distinguish between osmoregulation and thermoregulation • Describe the role of the skin in osmoregulation • Describe the role of the skin in thermoregulation	• Distinguishing between osmoregulation and thermoregulation • Describing the role of the skin in osmoregulation • Describing the role of the skin in thermoregulation	• Chart showing diagram of the skin • Photograph of a section of the skin	• Comprehensive secondary Biology students Bk. 2 page 98-99 • Teachers bk. 2 pages 58-68 • KLB secondary Biology Students book 2 Page 98-101 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page 131-132 • Golden tips biology pages 98-100 • Gateway secondary Biology pages 142-143	

							• Longman biology page 78 • High flyer series pages 45-47	
	3-4	EXCRETION AND HOMEOSTASIS	Thermoregulation in human beings	By the end of the lesson, the learner should be able to: • Identify behavioral and physiological means of thermoregulation in animals • Describe behavioral and physiological means of thermoregulation in animals	• Identifying behavioral and physiological means of thermoregulation in animals • Describing behavioral and physiological means of thermoregulation in animals	• Photographs of warmly dressed people during cold weather • Photograph of people with light cloth during hot weather	• Comprehensive secondary Biology students Bk. 2 page 99-100 • Teachers bk. 2 pages 58-68 • KLB secondary Biology Students book 2 Page 98-100 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page • Golden tips biology pages 106-108 • Gateway secondary Biology pages 147-148 • Longman biology page 78 • High flyer series pages	
6	1	EXCRETION AND HOMEOSTASIS	Heat loss and heat gain	By the end of the lesson, the learner should be able to: • Explain Heat loss and heat gain • Describe the various methods of Heat loss and heat gain in mammals	• Explaining Heat loss and heat gain • Discussion on methods of Heat loss and heat gain in mammals	• Resource person e.g. physics teacher to describe methods of heat loss and heat gain	• Comprehensive secondary Biology students Bk. 2 page 99-100 • Teachers bk. 2 pages 58-68 • KLB secondary Biology Students book 2 Page 98-100 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page 149-153	

							• Golden tips biology pages 106-108 • Gateway secondary Biology pages 148 • Longman biology page 78-79 • High flyer series pages 49-50	
	2	EXCRETION AND HOMEOSTASIS	Surface area to volume ratio in relation to thermoregulation	By the end of the lesson, the learner should be able to: • Explain the terms Surface area to volume ratio in relation • Relate the body size of mammals to heat loss and heat gain	• Explaining the terms Surface area to volume ratio in relation • Discussion on the relationship between the body size of mammals to heat loss and heat gain	• Pictures of large sized mammals and small sized mammals	• Comprehensive secondary Biology students Bk. 2 page 99 • Teachers bk. 2 pages 58-68 • KLB secondary Biology Students book 2 Page 100-101 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page 152 • Golden tips biology pages 106-108 • Gateway secondary Biology pages 148 • Longman biology page 78-79 • High flyer series pages 49-50	
	3-4	EXCRETION AND HOMEOSTASIS	The role of the liver in homeostasis	By the end of the lesson, the learner should be able to: • Draw and label the liver and its associated parts • Describe the liver and its role in	• Drawing and labeling the liver and its associated parts • Describing the liver and its role in homeostasis	• Chart showing the external structure of the liver in relation to the gut, gall bladder and blood vessels	• Comprehensive secondary Biology students Bk. 2 page 102-104 • Teachers bk. 2 pages 58-68 • KLB secondary Biology Students book 2 Page 93-96 • KLB teachers book 2 pages 49-54	

				homeostasis			• Longhorn secondary biology: students book 2 page 153-156 • Golden tips biology pages 108 • Gateway secondary Biology pages 148-149 • Longman biology page • High flyer series pages	
7	1-2	EXCRETION AND HOMEOSTASIS	Functions of the liver	By the end of the lesson, the learner should be able to: • List down some of the functions of the liver • Describe the functions of the liver	• Listing down some of the functions of the liver • Describing the functions of the liver	• Chart showing the functions of the liver	• Comprehensive secondary Biology students Bk. 2 page 103-104 • Teachers bk. 2 pages 58-68 • KLB secondary Biology Students book 2 Page 95-96 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page • Golden tips biology pages 108 • Gateway secondary Biology pages 149-150 • Longman biology page 79 • High flyer series pages 48	
	3-4	EXCRETION AND HOMEOSTASIS	Diseases of the liver	By the end of the lesson, the learner should be able to: • Identify all the diseases of the liver • Describe the symptoms and	• Identifying all the diseases of the liver • Describing the symptoms and possible control of diabetes	• Chart showing diseases of liver cause and control/treatment	• Comprehensive secondary Biology students Bk. 2 page 103-104 • Teachers bk. 2 pages 58-68 • KLB secondary Biology Students	

				possible control of diabetes mellitus and other liver diseases • Explain the causes symptoms and diseases of the liver	mellitus and other liver diseases • Explaining the causes symptoms and diseases of the liver		book 2 Page 96-97 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page 156-158 • Golden tips biology pages 109-110 • Gateway secondary Biology pages 149 • Longman biology page 79-80 • High flyer series pages 48-49	
8	1-2	EXCRETION AND HOMEOSTASIS	Excretion and homeostasis in animals (practical lesson)	By the end of the lesson, the learner should be able to: • explain catalase enzyme and hydrogen peroxide • describe the role of catalase enzyme in breaking down hydrogen peroxide • use liver and kidney to investigate the reaction	• explaining catalase enzyme and hydrogen peroxide • carrying out the experiment to investigate the effect of catalase enzyme in breaking down hydrogen peroxide • discussion on results obtained in the experiment	• hydrogen peroxide • two beakers • measuring cylinder • piece of liver and kidney • splint • ruler	• Comprehensive secondary Biology students Bk. 2 page 86-105 • Teachers bk. 2 pages 58-68 • KLB secondary Biology Students book 2 Page 96 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page 155-156 • Golden tips biology pages 110 • Gateway secondary Biology pages • Longman biology page • High flyer series pages	
	3-4	EXCRETION AND HOMEOSTASIS	Continuous assessment test	By the end of the lesson, the learner should be able to • Answer all the questions	• Learner to answer all the questions • Teacher to supervise	• Question paper • Marking scheme		

				asked in the test	students			
9	1-2	EXCRETION AND HOMEOSTASIS	Role of the liver in the regulation of blood glucose	By the end of the lesson, the learner should be able to: • Describe the role of the liver in blood sugar control • Describe the role of insulin hormone	• Describing the role of the liver in blood sugar control • Describing the role of insulin hormone	• Chart showing steps in controlling blood sugar levels	• Comprehensive secondary Biology students Bk. 2 page 97 • Teachers bk. 2 pages 58-68 • KLB secondary Biology Students book 2 Page 102-103 • KLB teachers book 2 pages • Longhorn secondary biology: students book 2 page 153-156 • Golden tips biology pages 105-106 • Gateway secondary Biology pages 149 • Longman biology page 79 • High flyer series pages	
	3-4	EXCRETION AND HOMEOSTASIS	Regulation of blood sugar	By the end of the lesson, the learner should be able to: • Explain the regulation of blood sugar • Describe a flow chart showing the regulation of blood sugar	• Explaining the regulation of blood sugar • Describing a flow chart showing the regulation of blood sugar	• Flow chart showing regulation of blood sugar	• Comprehensive secondary Biology students Bk. 2 page 98 • Teachers bk. 2 pages 58-68 • KLB secondary Biology Students book 2 Page 102-103 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page 153-156 • Golden tips biology	

							pages 105-106 • Gateway secondary Biology pages 146 • Longman biology page 78-79 • High flyer series pages	
10	1-2	EXCRETION AND HOMEOSTASIS	Thermo regulation in other animals	By the end of the lesson, the learner should be able to • Describe temperature regulation in other animals	• Describing temperature regulation in other animals	• Photographs of birds, reptiles and camels showing behavior of temperature regulation	• Comprehensive secondary Biology students Bk. 2 page 100 • Teachers bk. 2 pages 58-68 • KLB secondary Biology Students book 2 Page 98-100 • KLB teachers book 2 pages 49-54 • Longhorn secondary biology: students book 2 page 146-152 • Golden tips biology pages 106-108 • Gateway secondary Biology pages 148 • Longman biology page • High flyer series pages	
	3-4	EXCRETION AND HOMEOSTASIS	Continuous assessment test	By the end of the lesson, the learner should be able to • Answer all the questions asked in the test	• Learner to be able to answer questions in the test • Teacher to supervise students as they do the test	• Question paper • Marking scheme		
11	1-2	REVISION	Gaseous exchange in animals	By the end of the lesson, the learner should be able to:	• Describing the parts of the lungs and	• Chart showing parts of the lungs	• Comprehensive secondary Biology students Bk. 2	

				• Relate parts of the lungs to its functions • Draw and label parts of the lungs	relating the to its functions • Drawing and labeling parts of the lungs		page 63-64,66 • Teachers bk. 2 pages 58-68 • KLB secondary Biology Students book 2 Page 59-64 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 91-94 • Golden tips biology pages 86 • Gateway secondary Biology pages 117 • Longman biology page 66-67 • High flyer series pages	
	3-4	REVISION	Gaseous exchange in animals	By the end of the lesson, the learner should be able to describe the functions of the lungs as discussed during gaseous exchange	• Reviewing gaseous exchange and functions of lungs • Reading notes on gaseous exchange	• Notes on gaseous exchange • Charts showing lungs	• Comprehensive secondary Biology students Bk. 2 page 63-65 • Teachers bk. 2 pages 58-68 • KLB secondary Biology Students book 2 Page 59-62 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 91-94 • Golden tips biology pages 85-87 • Gateway secondary Biology pages 117-118 • Longman biology page 65-67 • High flyer series pages	

12	1-4	REVISION	Gaseous exchange in animals (practical lesson)	By the end of the lesson, the learner should be able to: • Identify a mammals lungs • Observe and describe structures of lungs in relation to functions	• Identifying fresh lungs of a mammal • Observing and describing the structure of a mammals lungs in relation to their functions	• Fresh lungs of a cow • Livestock officer	• Comprehensive secondary Biology students Bk. 2 page 63-65 • Teachers bk. 2 pages 58-68 • KLB secondary Biology Students book 2 Page 63 • KLB teachers book 2 pages 35-44 • Longhorn secondary biology: students book 2 page 91-94 • Golden tips biology pages • Gateway secondary Biology pages • Longman biology page 66-67 • High flyer series pages	
13	**REVISION AND EXAMINATIONS**							