DOYEN PUBLISHERS

HIGH SCHOOL SCHEMES OF WORK

BIOLOGY FORM 4

(Term 1, 2 & 3)

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BIOLOGY FORM 4 SCHEMES OF WORK – TERM 1

WEEK	LESSON	TOPIC	SUB - TOPIC	OBJECTIVES	LEARNING/TEACHING ACTIVITIES	LEARNING/TEACHING RESOURCES	REFERENCES	REMARKS
1	1	GENETICS	Introduction to genetics	By the end of the lesson, the learner should be able to: • Define the term genetics • Differentiate between heredity and variation • Distinguish between continuous and discontinuous variations	• Defining the term genetics • Differentiating between heredity and variation • Demonstrating tongue rolling	• Members of the class • Teacher to demonstrate tongue rolling	• Comprehensive secondary Biology students Bk. 4 page 1 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 1 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 207	
	2	GENETICS	Variation within plants and animals	By the end of the lesson, the learner should be able to: • Describe continuous and discontinuous variations • Observe variations in plants and animals	• Describing continuous and discontinuous variations • Observing variations in plants and animals in the surrounding	• Students to be observed on variations like tongue rolling, sex, finger prints, eye colour, height • Leaves of different plants • Seeds of different plants	• Comprehensive secondary Biology students Bk. 4 page 1-4 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 1-4 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 207	
	3	GENETICS	chromosomes	By the end of the lesson, the learner should be able to: • Describe the structure, nature and properties of chromosomes	• Reviewing the nature and structure of chromosomes • Discussion on the structure and properties of chromosomes • Drawing and labeling the chromosomes	• Wall chart on structure of chromosomes • Plasticine to mold the chromosomes	• Comprehensive secondary Biology students Bk. 4 page 4-6 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 4-7 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 221	
	4-5	GENETICS	chromosomes	By the end of the lesson, the learner should be able to:	• Describing the basic nature of	• Models of diagrams of DNA molecule	• Comprehensive secondary Biology students Bk. 4 page	

				• Describe the structure, nature and properties of DNA molecule	DNA molecule and gene • Illustrating the structure of the DNA molecules using models	• Wires and different colours of beads for DNA genes	• Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 7-10 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 221-222	
2	1	GENETICS	chromosomes	By the end of the lesson, the learner should be able to: • Differentiate between DNA and RNA	• Differentiating between DNA and RNA • Discussion on differences between DNA and RNA molecules	• Models of DNA and RNA strands • Charts on DNA and RNA molecules	• Comprehensive secondary Biology students Bk. 4 page 5-6 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 9-10 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 221-226	
	2	GENETICS	First law of inheritance	By the end of the lesson, the learner should be able to: • Distinguish between F1 and F2 generation • Determine Mendel's first law of inheritance	• Differentiating between F1 and F2 off springs • Defining Mendel's first law of inheritance • Discussion on the differences between F1 and F2 off springs	• Chart showing genetic crossing	• Comprehensive secondary Biology students Bk. 4 page 6-10 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 11-15 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 211-213	
	3	GENETICS	First law of inheritance	By the end of the lesson, the learner should be able to: • Define other terms used in inheritance such as phenotype, genotype, dominant gene, recessive gene, haploid and diploid	• Defining terms used in inheritance	• Chart on terms used in inheritance	• Comprehensive secondary Biology students Bk. 4 page 7-8 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 13-14	

							• KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 210	
	4-5	GENETICS	First law of inheritance	By the end of the lesson, the learner should be able to: • Demonstrate monohybrid inheritance in plants and animals • Predict outcomes of various genetic crosses	• Demonstrating monohybrid inheritance in plants and animals • Working out F1 and F2 offspring in monohybrid crosses • Predicting outcomes of various crosses	• Illustrations on monohybrid crosses • Pannet squares on charts	• Comprehensive secondary Biology students Bk. 4 page 6-9 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 12-15 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 207-209	
3	1	GENETICS	First law of inheritance	By the end of the lesson, the learner should be able to: • Construct and make use of pannet squares • Work out genotypic and phenotypic ratios • Predict outcomes of various crosses	• Working out monohybrid ratio of F2 offspring • Working out phenotypic and genotypic ratios and probabilities	• Chart showing punnet squares and illustrations on monohybrid inheritance	• Comprehensive secondary Biology students Bk. 4 page 7-9 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 14-16 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 213-214	
	2	GENETICS	Back cross or test cross	By the end of the lesson, the learner should be able to: • Determine the unknown genotypes in a cross using a test cross	• Defining a test cross or back cross • Explaining the use of test cross in determining unknown genotypes	• Chart showing punnet squares illustrating monohybrid inheritance (test cross)	• Comprehensive secondary Biology students Bk. 4 page 10-11 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 22-23 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 212-213	

	3	GENETICS	Monohybrid inheritance	By the end of the lesson, the learner should be able to: • Describe albinism as an example of monohybrid inheritance in human beings	• Describing inheritance of albinism in human beings	• Chart showing crosses on punnet squares to show inheritance of albinism	• Comprehensive secondary Biology students Bk. 4 page 21 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 25 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 213-214	
	4-5	GENETICS	Inheritance of ABO blood groups	By the end of the lesson, the learner should be able to: • Explain the inheritance of ABO blood groups in human beings	• Explaining the inheritance of ABO blood groups in human beings • Demonstrating crosses	• Chart showing blood group crosses on punnet squares	• Comprehensive secondary Biology students Bk. 4 page 11-12 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 20-21 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 220-221	
4	1	GENETICS	Inheritance of rhesus factor	By the end of the lesson, the learner should be able to: • Explain the inheritance of rhesus factor as an example of monohybrid inheritance in human beings	• Describing the inheritance of rhesus factor in human beings	• Chart showing blood group crosses on punnet squares	• Comprehensive secondary Biology students Bk. 4 page 12 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 21-22 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 221	
	2	GENETICS	Inheritance of blood groups	By the end of the lesson, the learner should be able to: • Predict the inheritance of blood groups human beings	• Predicting the inheritance of blood groups human beings	• Demonstration of crosses • Punnet squares	• Comprehensive secondary Biology students Bk. 4 page 11-12 • Teachers bk. 4 pages 1-13	

							• KLB secondary Biology Students book 4 Page 20-21 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 220-221	
	3	EVALUATION	Continuous assessment test	By the end of the lesson, the learner should be able to: • Write down the correct answers to the questions in the test	• Learner recalls and writes down answers to questions • Teacher supervises as learners do the test	• Question papers • Marking scheme	• Comprehensive secondary Biology students Bk. 4 page 11-12 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 1-22 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 207-220	
	4-5	GENETICS	Incomplete dominance	By the end of the lesson, the learner should be able to: • Describe incomplete dominance • Describe inheritance of colour in flowers of mirabis jalapa	• Defining incomplete dominance • Describing inheritance of colour in flowers of mirabis jalapa	• Punnet squares	• Comprehensive secondary Biology students Bk. 4 page 9-10 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 19-20 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 214-215	
5	1	GENETICS	Inheritance of sickle cell anemia	By the end of the lesson, the learner should be able to: • Describe Inheritance of sickle cell anemia in human beings	• Describe Inheritance of sickle cell anemia as co-dominant	• Illustrations of crosses • Punnet squares	• Comprehensive secondary Biology students Bk. 4 page 21-22 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 35-37	

							• KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 215-216	
	2	GENETICS	Sex determination in human beings	By the end of the lesson, the learner should be able to: • Explain how sex is determined in human beings • Describe sex linkages in human beings	• Explaining and describing sex determination • Explaining and discussing sex linkage in human beings	• Charts showing diagrams of sex chromosomes	• Comprehensive secondary Biology students Bk. 4 page 13-14 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 23-24 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 217-220	
	3	GENETICS	linkage	By the end of the lesson, the learner should be able to: • Define linkage and sex-linkage • Describe linkage in human beings e.g. colour blindness and hemophilia	• Defining and describing linkage and sex-linkage • Demonstrating crosses on colour blindness and hemophilia	• Charts showing crosses on colour blindness and hemophilia • Punnet squares	• Comprehensive secondary Biology students Bk. 4 page 14-16 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 24-27 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 218-220	
	4-5	GENETICS	Inheritance of colour blindness	By the end of the lesson, the learner should be able to: • Describe color blindness as an example of sex-linked trait in human beings • Interpret pedigree of inheritance	• Describing colour blindness • Discussion on inheritance of colour blindness • Interpreting pedigree chart of inheritance	• Charts showing pedigree chart of inheritance	• Comprehensive secondary Biology students Bk. 4 page 15-16 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 25-26 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 218-219	

6	1-2	GENETICS	Inheritance of hemophilia	By the end of the lesson, the learner should be able to: • Describe the Inheritance of hemophilia as an example of sex-linked traits in human beings	• Describing Inheritance of hemophilia as an example of sex-linked traits in human beings • Discussions on inheritance of hemophilia in human beings	• Punnet squares • Pedigree chart of inheritance from texts	• Comprehensive secondary Biology students Bk. 4 page 16-17 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 27 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 220	
	3	GENETICS EVALUATION	Continuous assessment test	By the end of the lesson, the learner should be able to: • write down the correct answers to the questions given	• Students recalls and writes down answers to questions asked • Teacher supervises as students do the test	• Question papers • Marking scheme	• Comprehensive secondary Biology students Bk. 4 page 1-18 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 234-236	
	4-5	GENETICS	Sources of variations in organisms	By the end of the lesson, the learner should be able to: • Define mutation • Differentiate between mutations and mutagens • List down causes of mutations	• Defining mutations • identifying mutagens • Listing down causes of mutations	• Pictures or photographs of organisms that have mutations	• Comprehensive secondary Biology students Bk. 4 page 17-18 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 28-29 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 232-233	
7	1-2	GENETICS	Types of mutations	By the end of the lesson, the learner should be able to: • State the types of mutations	• Stating the types of chromosal mutations	• Chart on the various types of chromosal mutations	• Comprehensive secondary Biology students Bk. 4 page 17-19	

				• List down the various chromosal mutations • Describe chromosal mutations	• Listing down the various chromosal mutations • Describing chromosal mutations • Discussion on duplication, inversion, translocation and non-disjunction		• Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 28-33 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 229-231	
	3	GENETICS	Effects of chromosal mutations	By the end of the lesson, the learner should be able to: • Explain the Effects of chromosal mutations	• Discussion on effects of Effects of chromosal mutations	•	• Comprehensive secondary Biology students Bk. 4 page 19 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 30-33 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 230-231	
	4-5	GENETICS	Gene mutations	By the end of the lesson, the learner should be able to: • Describe gene mutations and their effects on organisms	• Describing gene mutations • Discussion on substitution, point mutation, insertion and gene mutations	• Chart showing diagrams on gene mutations • Photographs • Magazines • Newspaper cuttings	• Comprehensive secondary Biology students Bk. 4 page 20-22 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 33-34 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 228-229	
8	1-2	GENETICS	Practical application of genetics	By the end of the lesson, the learner should be able to: • Describe areas in which the knowledge of genetics has been applied	• Discussion on scientific fields where genetic knowledge has been applied	• Photographs • Magazines • Newspaper cuttings • Scientific journals	• Comprehensive secondary Biology students Bk. 4 page 23-28 • Teachers bk. 4 pages 1-13	

							• KLB secondary Biology Students book 4 Page 39-44 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 233	
	3	GENETICS	Practical application of genetics	By the end of the lesson, the learner should be able to: • Explain the practical applications of genetics	• Discussion on the practical applications of genetics	• Photographs • Magazines • Newspaper cuttings • Scientific journals	• Comprehensive secondary Biology students Bk. 4 page 23-28 • Teachers bk. 4 pages 1-13 • KLB secondary Biology Students book 4 Page 39-44 • KLB teachers book 4 pages 12-30 • Principles of biology vol. 2 pages 233	
	4-5	EVOLUTION	Introduction to evolution	By the end of the lesson, the learner should be able to: • Define evolution • Explain the current concepts of the origin of life	• Defining evolution • Explaining the current concepts of the origin of life	• Local museum • Historical sites	• Comprehensive secondary Biology students Bk. 4 page 35-36 • Teachers bk. 4 pages 14-24 • KLB secondary Biology Students book 4 Page 49-51 • KLB teachers book 4 pages 31-37 • Principles of biology vol. 2 pages 238-239	
9	1	EVOLUTION	Continuous assessment test	By the end of the lesson, the learner should be able to: • Write down correct answers to questions asked	• Learner to recall and write down answers to questions asked • Teacher to supervise the learners as they do their exams life	• Question paper • Marking schemes	• Comprehensive secondary Biology students Bk. 4 page 1-36 • Teachers bk. 4 pages 14-24 • KLB secondary Biology Students book 4 Page 46-48	

							• KLB teachers book 4 pages 31-37 • Principles of biology vol. 2 pages 234-237	
	2	EVOLUTION	Origin of life	By the end of the lesson, the learner should be able to: • Explain the current concepts on origin of life	• Explaining current concepts of origin of life • Discussion on evolution theory	• Information from a local museum and historical sites	• Comprehensive secondary Biology students Bk. 4 page 36 • Teachers bk. 4 pages 14-24 • KLB secondary Biology Students book 4 Page 49-51 • KLB teachers book 4 pages 31-37 • Principles of biology vol 2 pages 239-242-243	
	3	EVOLUTION	Evidence of organic evolution theory	By the end of the lesson, the learner should be able to: • Describe the study of fossils as evidence of organic evolution theory	• Describing the study of fossils • Discussion on evolution theory based on the study of fossils	• Information from a local museum and historical sites	• Comprehensive secondary Biology students Bk. 4 page 36-37 • Teachers bk. 4 pages 14-24 • KLB secondary Biology Students book 4 Page 51-56 • KLB teachers book 4 pages 31-37 • Principles of biology vol. 2 pages 245-249	
	4-5	EVOLUTION	Evidence of organic evolution theory	By the end of the lesson, the learner should be able to: • Describe competitive anatomy as evidence of organic evolution	• Identifying homologous structures in organisms and describing divergent evolution	• Diagrams and photographs of homologous structures • Information from local museums and historical sites • Vertebrate limbs	• Comprehensive secondary Biology students Bk. 4 page 39-40 • Teachers bk. 4 pages 14-24 • KLB secondary Biology Students book 4 Page 59-64 • KLB teachers book 4 pages 31-37 • Principles of biology vol. 2 pages 250-251	

10	1	EVOLUTION	Evidence of organic evolution theory	By the end of the lesson, the learner should be able to: • Describe competitive anatomy	• Identifying analogous structures in organisms and describing convergent evolution • Discussion on divergent evolution	• Diagrams and photographs of analogous structures in organisms • Information from local museums and historical sites • Wings of birds and insects	• Comprehensive secondary Biology students Bk. 4 page 41 • Teachers bk. 4 pages 14-24 • KLB secondary Biology Students book 4 Page 59-64 • KLB teachers book 4 pages 31-37 • Principles of biology vol. 2 pages 250-251	
	2-3	EVOLUTION	Evidence of organic evolution theory	By the end of the lesson, the learner should be able to: • Describe occurrence of vestigial structures and geographical distribution of organisms as evidence of organic evolution	• Describing vestigial structures • Discussion on geographical distribution of organisms	• Diagrams and photographs of vestigial structures • Chart of globe showing geographical distribution of organisms • Information from local museums and historical sites	• Comprehensive secondary Biology students Bk. 4 page 37-41 • Teachers bk. 4 pages 14-24 • KLB secondary Biology Students book 4 Page 56,64 • KLB teachers book 4 pages 31-37 • Principles of biology vol. 2 pages	
	4-5	EVOLUTION	Evidence of organic evolution theory	By the end of the lesson, the learner should be able to: • Describe comparative embryology, cell biology and biochemistry as evidence of organic evolution	• Describing comparative embryology, cell biology and biochemistry as evidence of organic evolution theory	• Diagrams and photographs of embryos of different chorales and plant and animal cells • Information from local museums and historical sites	• Comprehensive secondary Biology students Bk. 4 page 39-42 • Teachers bk. 4 pages 14-24 • KLB secondary Biology Students book 4 Page 59,64-65 • KLB teachers book 4 pages 31-37 • Principles of biology vol. 2 pages 252-253	
11	1-2	EVOLUTION	Human evolution	By the end of the lesson, the learner should be able to: • Describe evolution of hominids	• Describing evolution of hominids from earliest common	• Diagrams skulls and limbs of hominids	• Comprehensive secondary Biology students Bk. 4 page 42-44	

					proconsul ancestors to date • Discussion on evolution of hominids	• Information from local museums and historical sites	• Teachers bk. 4 pages 14-24 • KLB secondary Biology Students book 4 Page 52-53 • KLB teachers book 4 pages 31-34 • Principles of biology vol. 2 pages 256-261	
	3	EVOLUTION	Mechanism of evolution	By the end of the lesson, the learner should be able to: • Describe Lamarck's theory	• Describing Lamarck's theory • Discussion on Lamarck's theory	• Information from local museums and historical sites	• Comprehensive secondary Biology students Bk. 4 page 45-46 • Teachers bk. 4 pages 14-24 • KLB secondary Biology Students book 4 Page 67 • KLB teachers book 4 pages 31-37 • Principles of biology vol. 2 pages 238-239	
	4-5	EVOLUTION	Mechanism of evolution	By the end of the lesson, the learner should be able to: • Describe and discuss the struggle for existence and survival for the fittest	• Discussion on Darwin's theory of natural selection • Discussion on struggle for existence and survival for the fittest	• Information from local museums and historical sites	• Comprehensive secondary Biology students Bk. 4 page 46-47 • Teachers bk. 4 pages 14-24 • KLB secondary Biology Students book 4 Page 68-69 • KLB teachers book 4 pages 31-37 • Principles of biology vol. 2 pages 240-241	
12	1-2	EVOLUTION	Mechanism of evolution	By the end of the lesson, the learner should be able to: • Describe and discuss new concepts of Darwin's theory	• Discussion on Neo-Darwinism with regard to new discoveries e.g. mutations	• Information from local museums and historical sites	• Comprehensive secondary Biology students Bk. 4 page 47 • Teachers bk. 4 pages 14-24 • KLB secondary Biology Students book 4 Page 67-69	

							• KLB teachers book 4 pages 31-37 • Principles of biology vol. 2 pages 239-240	
	3	EVOLUTION	Mechanism of evolution	By the end of the lesson, the learner should be able to: • Describe natural selection in action	• Describing mechanism of peppered moth	• Photographs of peppered moth	• Comprehensive secondary Biology students Bk. 4 page 46-47 • Teachers bk. 4 pages 14-24 • KLB secondary Biology Students book 4 Page 69-71 • KLB teachers book 4 pages 31-37 • Principles of biology vol. 2 pages 261-262	
	4-5	EVOLUTION	Mechanism of evolution	By the end of the lesson, the learner should be able to: • Describe natural selection in nature	• Describing resistance to antibiotics, fungicides and pesticides by organisms	• Journals, periodicals and magazines • Local environment	• Comprehensive secondary Biology students Bk. 4 page 48 • Teachers bk. 4 pages 14-24 • KLB secondary Biology Students book 4 Page 70-71 • KLB teachers book 4 pages 31-37 • Principles of biology vol. 2 pages 262-263	
13	**REVISION AND END OF TERM EXAMINATIONS**							

BIOLOGY FORM 4 SCHEMES OF WORK – TERM 2

WEEK	LESSON	TOPIC	SUB - TOPIC	OBJECTIVES	LEARNING/TEACHING ACTIVITIES	LEARNING/TEACHING RESOURCES	REFERENCES	REMARKS
1	1-2	EVOLUTION	Mechanism of evolution	By the end of the lesson, the learner should be able to: • Describe the isolation mechanism in speciation	• Discussion on the isolation mechanism in speciation	• Journals, periodicals and magazines • Local environment	• Comprehensive secondary Biology students Bk. 4 page 48 • Teachers bk. 4 pages 14-24 • KLB secondary Biology Students book 4 Page • KLB teachers book 4 pages 31-37 • Principles of biology vol. 2 pages 243-244	
	3	EVOLUTION	Artificial selection	By the end of the lesson, the learner should be able to: • Describe Artificial selection in plants and animals and how it leads to speciation	• Identifying the role of artificial selection in evolution • Discussion on hybridization, cultivars and green revolution	• Journals, periodicals and magazines • Local environment	• Comprehensive secondary Biology students Bk. 4 page 48-49 • Teachers bk. 4 pages 14-24 • KLB secondary Biology Students book 4 Page • KLB teachers book 4 pages • Principles of biology vol. 2 pages 263-264	
	4-5	EVOLUTION	Evolution and sexual reproduction	By the end of the lesson, the learner should be able to: • Explain the importance of sexual reproduction in evolution	• Explaining the role of sexual reproduction in evolution	• Journals, periodicals and magazines •	• Comprehensive secondary Biology students Bk. 4 page 47-48 • Teachers bk. 4 pages 14-24 • KLB secondary Biology Students book 4 Page • KLB teachers book 4 pages • Principles of biology vol. 2 pages 243-244	

2	1	RECEPTION RESPONSE AND CO-ORDINATION	Introduction	By the end of the lesson, the learner should be able to: • Define stimulus • Define irritability • Define response	• Defining stimulus, irritability and response • Demonstrating how stimulus, response and irritability are related and coordinated	• Pin • Candle • Match box • bell	• Comprehensive secondary Biology students Bk. 4 page 52 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 73-74 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 266-267	
	2	RECEPTION RESPONSE AND CO-ORDINATION	Reception response and co-ordination in plants	By the end of the lesson, the learner should be able to: • Define tactic and tropic responses • List down tactic responses in plants • List down tropic responses in plants • Differentiate between tactic and tropic responses	• Defining tactic and tropic responses • Defining and demonstrating tropism in plants • List down tactic responses in plants • List down tropic responses in plants • Differentiate between tactic and tropic responses	• Chart showing tactic and tropic responses in plants • Potted seedlings • Source of light • Cotton box	• Comprehensive secondary Biology students Bk. 4 page 52-54 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 76-78 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 294-299	
	3	RECEPTION RESPONSE AND CO-ORDINATION	Geotropism	By the end of the lesson, the learner should be able to: • Define geotropism • Describe geotropism in roots and shoots of plants	• Defining and illustrating geotropism • Discussion on geotropism	• Plants with shoots and roots • Charts showing geotropism and phototropism	• Comprehensive secondary Biology students Bk. 4 page 55 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 80-83 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 298-300	

	4-5	RECEPTION RESPONSE AND CO-ORDINATION	Phototropism and Geotropism	By the end of the lesson, the learner should be able to: • Differentiate between Phototropism and geotropism • Carry out experiments demonstrating both Phototropism and geotropism in a plant seedling	• Differentiating between Phototropism and geotropism • Carrying out experiments demonstrating both Phototropism and geotropism	• Potted plants • Carton/cardboard • Knife/blade • Source of light • Germinating bean seeds • Clinostat • Cello tape • Cotton wool • Pin • Plasticine • Petri dishes	• Comprehensive secondary Biology students Bk. 4 page 82-83 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 82-83 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 297-300	
3	1-2	RECEPTION RESPONSE AND CO-ORDINATION	Reception response and co-ordination in organisms	By the end of the lesson, the learner should be able to: • Carry out experiments to demonstrate tactic responses to light and water • Carry out experiments to show chemotactic response using fruit juice	• Carrying out experiments to demonstrate tactic response and to show chemotactic response using fruit juice	• 4 test tubes • Black paper • Woodlice • Silverfish • Termites or fly maggots • Plasticine • Moist soil • Dry soil • 3 petri dishes with lids • Fruit flies drosophila melanogarta • Mashed over ripe bananas • Fruit insect net	• Comprehensive secondary Biology students Bk. 4 page 81-82 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 79-80 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 294-295	
	3	RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS	Hydrotropism and thigmotropism	By the end of the lesson, the learner should be able to: • Define Hydrotropism and thigmotropism	• Defining Hydrotropism and thigmotropism juice • Discussion on Hydrotropism and thigmotropism	• Charts on Hydrotropism and thigmotropism	• Comprehensive secondary Biology students Bk. 4 page 55 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 83 • KLB teachers book 4 pages 38-58	

							• Principles of biology vol. 2 pages 301-302	
	4-5	RECEPTION RESPONSE AND CO-ORDINATION	Tactic and tropic responses	By the end of the lesson, the learner should be able to: • State the importance of Tactic and tropic responses	• Discussion on the importance of Tactic and tropic responses	• Chart with listed survival values of Tactic and tropic responses	• Comprehensive secondary Biology students Bk. 4 page 53-55 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 79-80 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 298-302	
4	1-2	RECEPTION RESPONSE AND CO-ORDINATION	Plant hormones and their effects on plant growth	By the end of the lesson, the learner should be able to: • Explain the production of Plant hormones and their effects on plants	• Discussion on production of auxins and their movement and effect on plant	• Chart showing plant hormones and their effects on plants	• Comprehensive secondary Biology students Bk. 4 page 55 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 80-83 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 296-301	
	3-4	RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS	Hydrotropism (practical lesson)	By the end of the lesson, the learner should be able to: • Carry out experiment to investigate hydrotropism • Carry out experiment to investigate etiolation	• Carrying out experiments to investigate hydrotropism and etiolation	• Fine wire gauze • Wooden box • Blotting paper • Soil or sand • Soaked beans • Box or dark cupboard • Tins with perforated bases	• Comprehensive secondary Biology students Bk. 4 page 83-84 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 77-78 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 300	
	5	RECEPTION RESPONSE AND CO-	Simple reflex action	By the end of the lesson, the learner should be able to:	• Demonstrating knee jerk (reflex action)	• Wooden ruler • stool	• Comprehensive secondary Biology students Bk. 4 page 64	

		ORDINATION IN PLANTS AND ANIMALS		• Demonstrate the knee jerk in a reflex action	• Discussion on the knee jerk		• Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 89-90 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 271-272	
5	1	EVALUATION	Continuous assessment test	By the end of the lesson, the learner should be able to: • Answer the questions asked in the test	• Learner to recall and writes down answers to questions in the test • Teacher to supervise students as they do the test	• Question papers • Marking schemes	• Comprehensive secondary Biology students Bk. 4 page 86-87 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 107-109 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 304-308	
	2-3	RECEPTION RESPONSE AND CO-ORDINATION	Conditioned reflex actions	By the end of the lesson, the learner should be able to: • Defined Conditioned reflex actions • Describe Conditioned reflex action using parlous dog • Compare simple and conditioned reflex actions	• Defining Conditioned reflex actions • Describing Conditioned reflex action • Differentiating between simple and conditioned reflex actions	• Chart on the differences between simple and conditioned reflex actions	• Comprehensive secondary Biology students Bk. 4 page 64-65 • Teachers bk. 4 pages 24-65 • KLB secondary Biology Students book 4 Page 90 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 274-275	
	4-5	RECEPTION RESPONSE AND CO-ORDINATION IN ANIMALS AND PLANTS	The role of hormones in co-ordination in mammals	By the end of the lesson, the learner should be able to: • Explain the role of endocrine system in a human being • Explain the effect over secretion and under secretion of	• Naming endocrine organs in human beings • Stating the functions of endocrine organs • Discussion on the effect of under	• Chart on position of endocrine glands in females and males human beings	• Comprehensive secondary Biology students Bk. 4 page 65-66 • Teachers bk. 4 pages 24-38	

				thyroxin and adrenaline	secretion and over secretion of thyroxin and adrenaline	• Charts showing feedback mechanisms of adrenaline and thyroxin	• KLB secondary Biology Students book 4 Page 93-95 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 291-294	
6	1-2	RECEPTION RESPONSE AND CO-ORDINATION IN ANIMALS AND PLANTS	The role of hormones in co-ordination in mammals	By the end of the lesson, the learner should be able to: • Isolate and list the similarities and differences between the endocrine and the nervous system	• Explaining the similarities and differences between the endocrine and the nervous system	• Chart on the comparison between endocrine and the nervous system	• Comprehensive secondary Biology students Bk. 4 page 66-67 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 95 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 291-292	
	3	RECEPTION RESPONSE AND CO-ORDINATION	Effects of drug abuse on human health	By the end of the lesson, the learner should be able to: • State the effects of drug abuse on human health	• Defining drugs and drug abuse • Discussion on drugs, drug abuse and effects on human health	• Chart with table on effects of drug abuse on human health • Photographs of people affected by drug abuse	• Comprehensive secondary Biology students Bk. 4 page 67-68 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 96 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages	
	4-5	RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS	Structure of mammalian eye	By the end of the lesson, the learner should be able to: • Draw and label the mammalian eye • State the functions of the mammalian eye	• Drawing and labeling the mammalian eye	• Chart showing the human eye	• Comprehensive secondary Biology students Bk. 4 page 68-69 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 96-97	

							• KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 279-281	
7	1-2	RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS	Structure of the human eye	By the end of the lesson, the learner should be able to: • Describe how the structure of the mammalian eye is adapted to its functions	• Discussion on the adaptations of the various parts of the eye to their functions	• Chart showing the mammalian eye • Chart with table showing summary of parts, adaptations and functions of the mammalian heart	• Comprehensive secondary Biology students Bk. 4 page 69-72 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 97-98 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 280-281	
	3-4	RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS	Structure of the mammalian eye	By the end of the lesson, the learner should be able to: • Dissect and display parts of the mammalian eye	• Dissecting mammalian eye and identifying the various parts (external and internal)	• mammalian eye • dissecting tray • gloves	• Comprehensive secondary Biology students Bk. 4 page 69 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 97 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 280	
	5	RECEPTION RESPONSE AND CO-ORDINATION	Image formation in the mammalian eye	By the end of the lesson, the learner should be able to: • Describe how an image is formed and interpreted in the mammalian eye	• Describing how an image is formed and interpreted in the mammalian eye	• Chart on image formation in the retina	• Comprehensive secondary Biology students Bk. 4 page 69 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 100-101 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 280-281	

8	1-2	RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS	Accommodation in the mammalian eye	By the end of the lesson, the learner should be able to: • Describe Accommodation in the mammalian eye	• Defining accommodation • Drawing diagrams on accommodation of the far and near objects • Discussion on accommodation	• Chart on accommodation of distant and nearby objects in the mammalian eye	• Comprehensive secondary Biology students Bk. 4 page 72-73 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 101-102 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 283-285	
	3	RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS	Common eye defects	By the end of the lesson, the learner should be able to: • Name and explain the Common eye defects	• Naming and explaining the Common eye defects	• Chart on defects and their corrections	• Comprehensive secondary Biology students Bk. 4 page 73-75 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 102-104 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 287-288	
	4-5	RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS	Common eye defects	By the end of the lesson, the learner should be able to: • Describe Common eye defects and their corrections • Investigate the blind spot In the eye • Investigate which eye is used more during vision	• Describing and illustrating common eye defects e.g. long sightedness and short sightedness	• Chart on eye defects and their corrections • Pencils • Ruler • Paper • Biro • Window/door frame	• Comprehensive secondary Biology students Bk. 4 page 73-75,84 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 102-104 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 289-286	
9	1-2	RECEPTION RESPONSE AND CO-ORDINATIO	Common eye diseases	By the end of the lesson, the learner should be able to:	• Naming and describing Common eye diseases	• Resource person e.g. eye specialist	• Comprehensive secondary Biology students Bk. 4 page 75-76	

		N IN PLANTS AND ANIMALS		• Name and describe Common eye diseases			• Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 102-104 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 285-286	
	3	RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS	Structure of the mammalian ear	By the end of the lesson, the learner should be able to: • Draw and label the mammalian ear	• Drawing and labeling the mammalian ear	• Chart showing parts of the mammalian ear	• Comprehensive secondary Biology students Bk. 4 page 76-77 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 104-105 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 286	
	4-5	RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS	Structure of the mammalian ear	By the end of the lesson, the learner should be able to: • Describe the mammalian ear and how it is adapted to its functions	• Discussion on the structures of the mammalian ear and how they are adapted to their functions	• Chart showing parts of the mammalian ear	• Comprehensive secondary Biology students Bk. 4 page 76-78 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 104-105 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 286-287	
10	1-2	EVALUATION	Continuous assessment test	By the end of the lesson, the learner should be able to: • Answer the questions asked in the test	• Learner to recall and writes down answers to questions in the test • Teacher to supervise students as they do the test	• Question papers • Marking schemes	• Comprehensive secondary Biology students Bk. 4 page 86-87 • Teachers bk. 4 pages 24-38	

							• KLB secondary Biology Students book 4 Page 107-110 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 304-308	
	3	RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS	The mechanism of hearing	By the end of the lesson, the learner should be able to: • Describe the mechanism of hearing	• Discussion on the mechanism of hearing	• Chart showing the mechanism of hearing	• Comprehensive secondary Biology students Bk. 4 page 79-80 • Teachers bk. 4 pages 24-38 • KLB secondary Biology Students book 4 Page 106-107 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 287-289	
	4-5	RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS	Common defects of the ear	By the end of the lesson, the learner should be able to: • Discuss thick ear drum, damaged cochlea, raptured eardrum, fussed ossicles, otitis media, ostosceleross and tinnitus	• Discussion on common ear defects	• Chart showing common defects of the ear • Ear specialist	• Comprehensive secondary Biology students Bk. 4 page 79-80 • Teachers bk. 4 pages 24-80 • KLB secondary Biology Students book 4 Page 107 • KLB teachers book 4 pages 38-58 • Principles of biology vol. 2 pages 289-290	
11 - 13	**REVISION AND END OF TERM EXAMINATIONS**							

BIOLOGY FORM 4 SCHEMES OF WORK – TERM 3

WEEK	LESSON	TOPIC	SUB - TOPIC	OBJECTIVES	LEARNING/TEACHING ACTIVITIES	LEARNING/TEACHING RESOURCES	REFERENCES	REMARKS
1	1	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	Introduction	By the end of the lesson, the learner should be able to: • Define support and movement • Describe the necessity of movement in plants and animals	• Defining support and movement • Describing the necessity of movement in plants and animals	• Potted plants • Small animals e.g. Fish rabbits and rats	• Comprehensive secondary Biology students Bk. 4 page 88-89 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 111-112 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 309	
	2	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	support and movement in plants	By the end of the lesson, the learner should be able to: • Review the tissue distribution in monocotyledonous an dicotyledonous plants	• Reviewing stem sections of monocotyledonous an dicotyledonous plants	• Chart showing sections of tracheids and xylem vessels	• Comprehensive secondary Biology students Bk. 4 page 89-90 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 112-114 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 327-328	
	3	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	Plants with woody stems and tendrils	By the end of the lesson, the learner should be able to: • Describe support in woody and non-woody stems • Describe the role of tendrils and tender stems in support	• Describing support in woody and non-woody stems • Describing the role of tendrils and tender stems in support	• Plants with tender stems e.g. Morning glory • Plants with tendrils e.g. Passion fruit • Pictures of climbing plants • Pictures of woody plants	• Comprehensive secondary Biology students Bk. 4 page 90-91 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 114-116 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages	

	4-5	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	Support and movement in plans (practical lesson)	By the end of the lesson, the learner should be able to: • Observe prepared sections of woody and herbaceous stems • Observe a wilting plant	• Observing prepared sections of woody and herbaceous stems • Observing a wilting plant • Discussion on the observations made	• Wilting plant • prepared sections of stems • slides • fine point brush • cover slips • scalpels • iodine solution • beaker	• Comprehensive secondary Biology students Bk. 4 page 115-116 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 115-116 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages	
2	1-2	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	Types of skeletons	By the end of the lesson, the learner should be able to: • List he types of skeletons • Describe the role of exoskeleton in insects • Describe the role and components of endoskeleton	• Listing the types of skeletons • Describing the role of exoskeleton in insects • Distinguishing between a bone and a cartilage	• Earth worm • Insect e.g. Locust • Bones from a chicken or goat	• Comprehensive secondary Biology students Bk. 4 page 92-96 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 116-117 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 310-312	
	3	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	Supported movement in animals	By the end of the lesson, the learner should be able to: • Describe the role of skeleton in vertebrates • Draw the structure of a finned fish (tilapia) • Calculate the tail power	• Description of skeleton in vertebrate • Drawing of a tilapia fish	• Finned fish • Ruler • Chart showing finned fish	• Comprehensive secondary Biology students Bk. 4 page 96-97 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 117-118 • KLB teachers book 4 pages 59-68 • Principles of biology vol 2 pages 325-326	
	4-5	SUPPORT AND MOVEMENT IN PLANTS	Locomotion in a finned fish	By the end of the lesson, the learner should be able to:	• Describing external and internal features of the fish to	• Finned fish in an aquarium • Chart showing tilapia fish	• Comprehensive secondary Biology students Bk. 4 page 96-98	

		AND ANIMALS		• Explain how locomotion occurs in fish • Name and draw the different fins and state their functions	explain how it is adapted to locomotion in water • Observing locomotion of tilapia fish in water		• Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 118 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 325-326	
3	1	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	Locomotion and support in mammals	By the end of the lesson, the learner should be able to: • Draw the human skeleton and identify the component parts • Identify and draw the skull	• Drawing and labeling the human skeleton • Using model to identify the components of the skeleton	• Model of human skeleton • Chart on human skeleton • Skull of a goat	• Comprehensive secondary Biology students Bk. 4 page 98-99 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 119-120 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 312-313	
	2	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	Axial skeleton	By the end of the lesson, the learner should be able to: • Identify bones of Axial skeleton in the vertebral column • Identify the cervical vertebrae	• Identifying bones of the vertebral columns • Drawing the cervical vertebrae • Relating the structures to their functions	• Model of human skeleton • Chart on showing the cervical vertebrae • Axis, atlas and other cervical vertebrae	• Comprehensive secondary Biology students Bk. 4 page 99-101 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 120-122 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 312-315	
	3	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	thoracic	By the end of the lesson, the learner should be able to: • Identify the structures of the thoracic vertebrae • Relate the structure of the thoracic	• Identifying, drawing and relating the structure of the thoracic vertebrae from goat • Charts showing thoracic vertebrae	• Model of human skeleton • Chart on showing the cervical vertebrae	• Comprehensive secondary Biology students Bk. 4 page 102 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 122	

				vertebrae to their functions		• Axis, atlas and other cervical vertebrae	• KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 315	
	4-5	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	thoracic	By the end of the lesson, the learner should be able to: • Identify the structures of lumbar, sacral and candal vertebrae • Show how ribs articulate with thoracic vertebrae	• Drawing and labeling the lumbar sacral and candal vertebrae • Relating the parts of the vertebrae to their functions	• Model of human skeleton • Chart on showing the lumbar, sacral and candal vertebrae of a goat • Axis, atlas and other cervical vertebrae	• Comprehensive secondary Biology students Bk. 4 page 102-103 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 122-124 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 315-317	
4	1	EVALUATION	Continuous assessment test	By the end of the lesson, the learner should be able to: • Answer the questions asked in the test	• Learner to recall and writes down answers to questions in the test • Teacher to supervise students as they do the test	• Question papers • Marking schemes	• Comprehensive secondary Biology students Bk. 4 page 120 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 12131-132 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 328-329	
	2	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	Ribs and sternum	By the end of the lesson, the learner should be able to: • Draw and label Ribs and sternum • Relate the structure to their functions	• Drawing and labeling the Ribs and sternum • Relating the structure to their functions	• Model of human skeleton • Rib bones • Sternum • Charts showing Ribs and sternum	• Comprehensive secondary Biology students Bk. 4 page 104-105 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 120-121 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 315-316	

	3	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	Appendicular skeleton	By the end of the lesson, the learner should be able to: • Identify components of Appendicular skeleton • Draw the scapula bone and relate it to its functions	• Identifying the bones of the Appendicular skeleton • Drawing and labeling scapula and relating the structure to its functions	• Model of human skeleton • Scapula bones • Chart showing scapula bone	• Comprehensive secondary Biology students Bk. 4 page 105 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 124-125 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 317-320	
	4-5	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	The fore limbs	By the end of the lesson, the learner should be able to: • Identify the bones of the fore limbs • Draw the structure of the humerus, radius and ulna	• Identifying drawing and labeling the structure of the humerus, radius and ulna • Discussing the adaptations of these bones to their functions	• humerus, radius and ulna bones • model of human skeleton • charts showing humerus, radius and ulna	• Comprehensive secondary Biology students Bk. 4 page 105-106 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 125 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 318-320	
5	1	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	Bones of the hand	By the end of the lesson, the learner should be able to: • Identify the bones of the hands • Draw and label bones of the hand	• Identifying drawing and labeling the bones of the hands • Relating the structure to their functions	• Bones of the hand • Model of the human skeleton • Chart showing bones of the hand	• Comprehensive secondary Biology students Bk. 4 page 106 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 126 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 318	
	2	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	The pelvic girdle	By the end of the lesson, the learner should be able to: • Draw the pelvic girdle • Name the bones of The pelvic girdle	• Identifying drawing and labeling the pelvic girdle relating its structure to its functions	• Pelvic girdle bones • Model of the human skeleton • Chart showing the pelvic girdle	• Comprehensive secondary Biology students Bk. 4 page 107 • Teachers bk. 4 pages 39-58	

				• Relate the structure to their functions			• KLB secondary Biology Students book 4 Page 126 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 320	
	3	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	The hind limb	By the end of the lesson, the learner should be able to: • Identify, draw and label the femur, tibia and tibula bones • Relate their structure to their functions	• Identifying drawing and labeling the bones of the hind limb • Relating the structure to their functions	• Tibia and tibula bone • Femur bone • Model of human skeleton	• Comprehensive secondary Biology students Bk. 4 page 107-108 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 319,320,321	
	4-5	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	Bones of the foot	By the end of the lesson, the learner should be able to: • Draw and label the bones of the foot • Relate the structure of bones of the foot to their functions	• drawing, labeling and relating the structure of the foot to its functions	• Model of the human skeleton • Bones of the foot	• Comprehensive secondary Biology students Bk. 4 page 108-109 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 119 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 319	
6	1	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	joints	By the end of the lesson, the learner should be able to: • Define a joint • List the three types of joints • Describe the types of joints	• Defining a joint • Identifying the types of joints • Describing the types of joints	• Model of the human skeleton • Chart showing types of joints • Bones showing all types of joints	• Comprehensive secondary Biology students Bk. 4 page 109-112 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 127-128	

							• KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 320-321	
	2	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	Joints	By the end of the lesson, the learner should be able to: • List examples of movable joints, hinge joints and bell and socket joints	• Naming examples of movable joints, hinge joints and bell and socket joints on a model skeleton	• Model of the human skeleton • Chart showing all types of joints	• Comprehensive secondary Biology students Bk. 4 page 110-112 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 127-128 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 320-321	
	3	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	Immovable joints	By the end of the lesson, the learner should be able to: • Define Immovable joints • Name Immovable joints	• Defining and naming Immovable joints	• Model of the human skeleton • Chart showing Immovable joints , gliding joints and skull	• Comprehensive secondary Biology students Bk. 4 page 109-110 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 127-128 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 320-321	
	4-5	SUPPORT AND MOVEMENT IN PLANTS AND ANIMALS	muscles	By the end of the lesson, the learner should be able to: • Define muscles • Explain the differences between the three types of muscles • Identifying biceps and triceps in the arm movement	• Defining muscles • Differentiating between the three types of muscles • Describing the role of Biceps and triceps in movement of the arm	• Chart showing smooth skeletal and cardiac muscles • Chart showing biceps and triceps muscles • Students arm	• Comprehensive secondary Biology students Bk. 4 page 109-112 • Teachers bk. 4 pages 39-58 • KLB secondary Biology Students book 4 Page 129-131 • KLB teachers book 4 pages 59-68 • Principles of biology vol. 2 pages 321-325	

7-12	**REVISION AND END OF TERM EXAMINATIONS**