***BIOLOGY SCHEMES OF WORK***

***FORM FOUR***

***FIRST TERM***

***REFERENCES***

1. ***COMPREHENSIVE SECONDARY BIOLOGY STUDENTS BOOK 4***
2. ***KLB SECONDARY BIOLOGY STUDENTS BOOK 4***
3. ***KLB TEACHERS BOOK 4***
4. ***PRINCIPLES OF BIOLOGY VOL. 2***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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:   * Describe the structure, nature and properties of DNA molecule | * Describing the basic nature of DNA molecule and gene * Illustrating the structure of the DNA molecules using models | * Models of diagrams of DNA molecule * Wires and different colours of beads for DNA genes | * Comprehensive secondary Biology students Bk. 4 page * 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 colour 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 * List down the various chromosal mutations * Describe chromosal mutations | * Stating the types of chromosal mutations * Listing down the various chromosal mutations * Describing chromosal mutations * Discussion on duplication, inversion, translocation and non-disjunction | * Chart on the various types of chromosal mutations | * Comprehensive secondary Biology students Bk. 4 page 17-19 * 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 | ***CYCLE ONE EXAMINATIONS*** | | | | | | |  |
| 9 | ***HALF TERM*** | | | | | | |  |
| 10 | 1 | 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 |  |
|  | 2 | 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 |  |
|  | 3 | 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 |  |
|  | 4-5 | 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 |  |
| 11 | 1 | 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 |  |
|  | 2 | 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 |  |
|  | 3 | 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 |  |
|  | 4-5 | 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 |  |
| 12 | 1 | 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 |  |
|  | 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 proconsul ancestors to date * Discussion on evolution of hominids | * Diagrams skulls and limbs of hominids * Information from local museums and historical sites | * Comprehensive secondary Biology students Bk. 4 page 42-44 * 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 | 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 |  |
|  | 5 | 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 |  |
|  |  | 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 |  |
| 13  &  14 | **REVISION AND END TERM EXAMINATION** | | | | | | | |

***BIOLOGY SCHEMES OF WORK***

***FORM FOUR***

***SECOND TERM***

***REFERENCES***

1. ***COMPREHENSIVE SECONDARY BIOLOGY STUDENTS BOOK 4***
2. ***KLB SECONDARY BIOLOGY STUDENTS BOOK 4***
3. ***KLB TEACHERS BOOK 4***
4. ***PRINCIPLES OF BIOLOGY VOL. 2***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **BIOLOGY FORM 4 SCHEMES OF WORK – TERM 2** | | | | | | | | |
| **WEEK** | **LESSON** | **TOPIC** | **SUB - TOPIC** | **OBJECTIVES** | **LEARNING/TEACHING ACTIVITIES** | **LEARNING/TEACHING RESOURCES** | **REFERENCES** | **REMARKS** |
| 1 | 1 | 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 |  |
|  | 2 | 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 |  |
|  | 3 | 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 |  |
|  | 4-5 | 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 | 1 | 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 |  |
|  | 2 | 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 |  |
|  | 3 | 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 |  |
|  | 4-5 | 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 | 1 | 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 |  |
|  | 2 | 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 |  |
|  | 3 | 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 |  |
|  | 4-5 | 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 |  |
| 4 | 1 | RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS | Simple reflex action | By the end of the lesson, the learner should be able to:   * Demonstrate the knee jerk in a reflex action | * Demonstrating knee jerk (reflex action) * Discussion on the knee jerk | * Wooden ruler * stool | * Comprehensive secondary Biology students Bk. 4 page 64 * 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 |  |
|  | 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 107-109 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 304-308 |  |
|  | 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 thyroxin and adrenaline | * Naming endocrine organs in human beings * Stating the functions of endocrine organs * Discussion on the effect of under secretion and over secretion of thyroxin and adrenaline | * Chart on position of endocrine glands in females and males human beings * Charts showing feedback mechanisms of adrenaline and thyroxin | * Comprehensive secondary Biology students Bk. 4 page 65-66 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 93-95 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 291-294 |  |
| 5 | 1 | 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 |  |
|  | 2 | 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 |  |
|  | 3 | 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 |  |
|  | 4-5 | 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 |  |
| 6 | 1 | 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 |  |
|  | 2 | 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 |  |
|  | 3 | 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 |  |
|  | 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:   * 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 |  |
| 7 | 1 | 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 |  |
|  | 2 | RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS | Common eye diseases | By the end of the lesson, the learner should be able to:   * Name and describe Common eye diseases | * Naming and describing Common eye diseases | * Resource person e.g. eye specialist | * Comprehensive secondary Biology students Bk. 4 page 75-76 * 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 |  |
| 8 | ***CYCLE ONE EXAMINATIONS*** | | | | | | |  |
| 9 | ***HALF TERM*** | | | | | | |  |
| 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 | Secondary Biology Students book 4 Page 107-110   * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 304-308 |  |
|  | 3 | 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 |  |
|  | 4-5 | 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 |  |
| 11 | 1-2 | 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 |  |
|  | 3 | 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 | * 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 |  |
|  | 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 |  |
| **12-14** | **REVISION AND END OF TERM EXAMINATIONS** | | | | | | | |

***BIOLOGY SCHEMES OF WORK***

***FORM FOUR***

***THIRD TERM***

***REFERENCES***

1. ***COMPREHENSIVE SECONDARY BIOLOGY STUDENTS BOOK 4***
2. ***KLB SECONDARY BIOLOGY STUDENTS BOOK 4***
3. ***KLB TEACHERS BOOK 4***
4. ***PRINCIPLES OF BIOLOGY VOL. 2***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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 AND ANIMALS | Locomotion in a finned fish | By the end of the lesson, the learner should be able to:   * Explain how locomotion occurs in fish * Name and draw the different fins and state their functions | * Describing external and internal features of the fish to explain how it is adapted to locomotion in water * Observing locomotion of tilapia fish in water | * Finned fish in an aquarium * Chart showing tilapia fish | * Comprehensive secondary Biology students Bk. 4 page 96-98 * 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 vertebrae to their functions | * 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 * Axis, atlas and other cervical vertebrae | * Comprehensive secondary Biology students Bk. 4 page 102 * Teachers bk. 4 pages 39-58 * KLB secondary Biology Students book 4 Page 122 * 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 * Relate the structure to their functions | * 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 * 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**  **&9** | **REVISION AND END OF TERM EXAMINATIONS** | | | | | | | |