**BIOLOGY SCHEMES OF WORK**

**FORM TWO 2016**

**TERM I**

**REFERENCES:**

1. KLB Secondary Biology Form 1 Students Book KLB BK 1
2. KLB Secondary Biology Form 2 Students Book KLB BK 2
3. Oxford Biology Book Form 1. Oxford BK 1
4. Oxford Biology Book Form 2. Oxford BK 2

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| **WK** | **LSN** | **TOPIC/S-TOPIC** | **OBJECTIVES** | **L/ACTIVITIES** | **L/T AIDS** | **REFERENCE** | **REMARKS** |
|  |  | **SCHOOL OPENING** | | | | |  |
| 1 | 1 | Nutrition in Animals  Introduction  Heterotropism | **By the end of the lesson, the learner**  **should be able to:-**  Distinguish symbiosis and parasitism | Class discussion | Charts  Textbooks | KLB BK 1 Pg 72  Oxford BK 1 Pg 73 |  |
|  | 2,3  &4 | Herbivorous animals  Dentition | **By the end of the lesson, the learner**  **should be able to:-**  Construct dental formular in herbivores | Drawing  Class discussion  Presentation | Pictures of herbivore  Skull, teeth. Real skull  and jaws | KLB BK 1 Pg 74  Oxford BK 1 Pg 74 |  |
|  | 5 | Omnivorous animals | **By the end of the lesson, the learner**  **should be able to:-**  Describe modification of four types of  teeth in human. | Drawing  Labeling  Describing modification  of teeth | Diagrams of human  skull.  Diagram of teeth in  Upper and lower jaw | KLB BK 1 Pg 74-76  Oxford BK 1 Pg 75 |  |
| 2 | 1&2 | Carnivores  Structure of teeth | **By the end of the lesson, the learner**  **should be able to:-**  Construct dental formular in carnivores | Drawing, Labeling  Describe mode of feeding  in herbivores | Diagrams of carnivore  skull. | KLB BK 1 Pg 74-75  Oxford BK 1 Pg 77 |  |
|  | 3,4  &5 | Dental diseases.  Digestion in the mouth  Outline digestive  functions of teeth,  saliva, tongue | **By the end of the lesson, the learner**  **should be able to:-**  Outline the digestive functions of  saliva, teeth and the tongue | Drawing  Labeling  Class discussion  Presentation | Chart on digestive  system  Textbooks | KLB BK 1 Pg 77-80  Oxford BK 1 Pg 78 |  |
| 3 | 1,2,3  4&5 | Digestion in the  Stomach, Duodenum  and Ileum | **By the end of the lesson, the learner**  **should be able to:-**  Describe digestion in the stomach and  Duodenum | Taking notes  Answering questions  Class discussion | Charts  Text books | KLB BK 1 Pg 80-83  Oxford BK 1 Pg 79 |  |
| 4 | 1 | Absorption of digested  Food.  Egestion | **By the end of the lesson, the learner**  **should be able to:-**  State how ileum is adapted to  absorption function | Note taking  Drawing and labeling | Text book | KLB BK 1 Pg 83  Oxford BK 1 Pg 83 |  |
|  | 2&3 | Assimilation of  absorbed food | **By the end of the lesson, the learner**  **should be able to:-**  Outline nutritional role of water,  vitamins and roughage in humans | Describe role of vitamins  and water in class  discussion | Text book | KLB BK 1 Pg 84  Oxford BK 1 Pg 84 |  |
|  | 4&5 | Factors that determine  energy requirements  in humans | **By the end of the lesson, the learner**  **should be able to:-**  Explain each of the factors determining energy requirements in humans | Compare surface area to volume ratio of adult  with infants | Pictures of people  doing different activities,  adult, offspring | KLB BK 1 Pg 88-89  Oxford BK 1 Pg 87 |  |
| 5 | 1,2  &3 | Transport in plants  Introduction  Internal structure of  the root | **By the end of the lesson, the learner**  **should be able to:-**  Relate the structure of the root to its  Function | Sectioning, observation,  Mounting magnification  Drawing and labeling | Uprooted dicot,  Monocot plants, scapel,  Water, slide and  Microscope | KLB BK 2 Pg 1-4  Oxford BK 2 Pg 1-4 |  |
| 6 | 1 | Structure of stem | **By the end of the lesson, the learner**  **should be able to:-**  State difference between dicot and  Monocot | *© Education Plus Agencies*  Staining, sectioning,  Observation, drawing  and labeling | Scapel, grass stem,  hand lens, white tile  and methylene | KLB BK 2 Pg 5  Oxford BK 2 Pg 6-7 |  |
|  | 2&3 | Absorption of water  and mineral salts  functions of xylem | **By the end of the lesson, the learner**  **should be able to:-**  Describe physiological processes  involved in absorption of water and  mineral salts | Experimental design  observation | Water in a beaker  Eosin dye  Uproot herb | KLB BK 2 Pg 7  Oxford BK 2 Pg 4-6 |  |
|  | 4&5 | Forces for water  Movement along  xylem | **By the end of the lesson, the learner**  **should be able to:-**  Outline factors for movement of water  along xylem | Demonstration of  Capillarity  Observation | Capillary tubes  Beaker of water | KLB BK 2 Pg 11-12  Oxford BK 2  Pg 11-12 |  |
| 7 | 1-5 | Transpiration  Factors  Significance | **By the end of the lesson, the learner**  **should be able to:-**  Demonstrate a simple experiment in  transpiration | Experimental design to  show transpiration | Polythene paper  Potted plant  Thread | KLB BK 2 Pg 9-10  Oxford BK 2  Pg 9-11 |  |
| 8 | 1&2 | Food transport in  Phloem | **By the end of the lesson, the learner**  **should be able to:-**  Describe structure of phloem | Taking notes | Text book | KLB BK 2 Pg 17-18  Oxford BK 2  Pg 12-13 |  |
|  | 3 | Open and closed  Circulatory system in  Insects | **By the end of the lesson, the learner**  **should be able to:-**  Distinguish between open and closed  Circulatory system | Observation | Diagram of body of  Insects | KLB BK 2 Pg 18-19  Oxford BK 2 Pg 22 |  |
|  | 4&5 | Mammalian circulation  Structure of the  Mammalian heart | **By the end of the lesson, the learner**  **should be able to:-**  Describe structure and function of the  heart | Drawing  Labeling | Goat heart  Chart | KLB BK 2 Pg 19-22  Oxford BK 2  Pg 24-26 |  |
| 9 | 1&2 | Heart beat | **By the end of the lesson, the learner**  **should be able to:-**  Relate the structure of the heart to its  function | Drawing  Labeling | Diagrams | KLB BK 2 Pg 23  Oxford BK 2  Pg 27-28 |  |
|  | 3,4  &5 | Structure and function  of arteries, veins and  capillaries | **By the end of the lesson, the learner**  **should be able to:-**  Distinguish between artery and veins | Discussion | Diagrams  Charts | KLB BK 2 Pg 25-30  Oxford BK 2  Pg 29-32 |  |
| 10 | 1 | Diseases of the  Circulatory system | **By the end of the lesson, the learner**  **should be able to:-**  List and describe diseases of the  circulatory system | Discussion on the  Circulatory system | Text books | KLB BK 2 Pg 31-32  Oxford BK 2  Pg 32-33 |  |
|  | 2-5 | Structure and  composition of blood | **By the end of the lesson, the learner**  **should be able to:-**  Describe modification of red blood  cells, WBC & Platelets to their functions | Notes taking  Class discussion | Text books | KLB BK 2 Pg 32-36  Oxford BK 2  Pg 33-37 |  |
| 11 | 1&2 | Blood groups and  Blood transfusion | **By the end of the lesson, the learner**  **should be able to:-**  Name blood groups in humans, how  Each is suited to its function | Discussion on blood  groups  Q/A method | Syringe | KLB BK 2 Pg 37-38  Oxford BK 2  Pg 37-38 |  |
|  | 3&4 | Immunity | **By the end of the lesson, the learner**  **should be able to:-**  Distinguish between natural and  Artificial immunity/acquired | Discussion  Q/A method | Text books | KLB BK 2 Pg 40-43  Oxford BK 2  Pg 39-41 |  |
| 12 | 1 | Allergic reactions | **By the end of the lesson, the learner**  **should be able to:-**  Lists factors that lead to allergic  Reactions in humans | Note taking  Discussion | Textbooks | KLB BK 2 Pg 43  Oxford BK 2 Pg 41 |  |
|  | 3,4  &5 | Gaseous Exchange  Gaseous exchange in  Plants stomata | **By the end of the lesson, the learner**  **should be able to:-**  Describe how gaseous exchange occur  in plants | Demonstrate that  gaseous exchange occur  in leaves | Leaves of Lantana  camata, warm water in  a beaker, source of  flame | KLB BK 2 Pg 48-52  Oxford BK 2  Pg 48-54 |  |
| 13 | 1-3 | Sites of gaseous  exchange in microbes | **By the end of the lesson, the learner**  **should be able to:-**  Describe features of sites of gaseous  exchange | Note taking | Diagrams of amoeba,  Epidermis | KLB BK 2 Pg 53  Oxford BK 2  Pg 57 |  |
|  | 4&5 | Gaseous exchange in  Insects | **By the end of the lesson, the learner**  **should be able to:-**  Outline features of tracheal system in  Insects | Class discussion | Diagrams if insects | KLB BK 2 Pg 54-55  Oxford BK 2  Pg 58-59 |  |
| 14 | 1-5 | **END TERM EXAMS** | | | | |  |
| 15 | 1-5 | **REVISION OF END TERM EXAMINATIONS** | | | | |  |

**BIOLOGY SCHEMES OF WORK**

**FORM TWO 2016**

**TERM II**

**REFERENCES:**

1. KLB Secondary Biology Form 1 Students Book KLB BK 1
2. KLB Secondary Biology Form 2 Students Book KLB BK 2
3. Oxford Biology Book Form 1. Oxford BK 1
4. Oxford Biology Book Form 2. Oxford BK 2

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|  |  | **SCHOOL OPENING** | | | | |  |
| 1 | 1-5 | Gaseous exchange in  Fish | **By the end of the lesson, the learner**  **should be able to:-**  Describe structure and adaptations of  gills to their functions | Drawing & Labeling  Dissecting  Discussion &  Presentation | Fish sample,  Hand lens,  Scapel, chart,  textbooks | KLB BK 2 Pg 56-58  Oxford BK 2  Pg 57 |  |
| 2 | 1&2 | Gaseous exchange in  Amphibians.  Mouth  Lungs | **By the end of the lesson, the learner**  **should be able to:-**  Describe how gaseous exchange occur  through skin and lungs | Class discussion | Text books | KLB BK 2 Pg 58  Oxford BK 2 Pg 59 |  |
|  | 3 | Skin | **By the end of the lesson, the learner**  **should be able to:-**  Outline significance of moisture in skin  Gaseous exchange | Class discussion  Viewing audio visual | Diagram in text book,  Audio visual aid | KLB BK 2 Pg 59  Oxford BK 2 Pg 59 |  |
|  | 4&5 | Gaseous exchange in  Mammals, the air  passage, nosal lining,  larynx, trachea, lungs | **By the end of the lesson, the learner**  **should be able to:-**  Explain significance of moisture and  Hairs along air passage | Class discussion | Chart  Textbooks | KLB BK 2 Pg 50-61  Oxford BK 2 Pg 63 |  |
| 3 | 1-5 | The breathing process | **By the end of the lesson, the learner**  **should be able to:-**  Outline role of intercostals muscles,  diaphragm, ribcage in the breathing  process | Demonstrating breathing  using model | Breathing model  Chart  Textbooks  Diagram of ribcage | KLB BK 2 Pg 61-63  Oxford BK 2  Pg 64-65 |  |
| 4 | 1,2  &3 | Gaseous exchange in  the alveolus | **By the end of the lesson, the learner**  **should be able to:-**  Outline role of moisture in the alveolus | Class discussion | Diagram  Textbooks | KLB BK 2 Pg 64  Oxford BK 2 Pg 66 |  |
|  | 4&5 | Factors affecting rate  of breathing | **By the end of the lesson, the learner**  **should be able to:-**  Describe factors affecting rate of  Breathing in humans | Class discussion  Presentation  Notes taking | Textbooks | KLB BK 2 Pg 65  Oxford BK 2 Pg 66 |  |
| 5 | 1,2  &3 | Diseases of the  Respiratory system | **By the end of the lesson, the learner**  **should be able to:-**  Describe causes, symptoms and  Prevention of diseases of the breathing  system | Class discussion | Textbooks | KLB BK 2 Pg 67-70  Oxford BK 2  Pg 74-75 |  |
|  | 4&5 | Respiration  Introduction  Types of respiration | **By the end of the lesson, the learner**  **should be able to:-**  Define respiration, name and describe  Aerobic and anaerobic respiration | Class discussion | Chart  Textbooks | KLB BK 2 Pg 68  Oxford BK 2  Pg 76 |  |
| 6 | 1&2 | Respiration  significance | Explain significance of respiration and  Outline further types of respiration | Demonstrate combustion  of food yield  carbon (IV) oxide | Food sample, boiling  tube, capillary tube,  lime water | KLB BK 2 Pg 73  Oxford BK 2 Pg 76 |  |
|  | 3,4  &5 | Application of  Anaerobic respiration | **By the end of the lesson, the learner**  **should be able to:-**  Explain economic importance of  anaerobic respiration | Demonstrate  fermentation | Yeast oil, glucose,  Test tube, capillary  tube, lime water | KLB BK 2 Pg 78  Oxford BK 2 Pg 77 |  |
| 7 | 1,2  3&4 | Respiratory substrates  Respiratory quotient | **By the end of the lesson, the learner**  **should be able to:-**  - List the metabolic substrates  - Define respiratory quotient and  calculate RQ | Class discussion | Glucose | KLB BK 2 Pg 79-80  Oxford BK 2 Pg 77 |  |
|  | 5 | Factors affecting  Respiration | **By the end of the lesson, the learner**  **should be able to:-**  Outline factors affecting respiration | Class discussion | Textbooks | KLB BK 2 Pg 80-81  Oxford BK 2 Pg 78 |  |
| 8 | 1&2 | Factors affecting  respiratory substrate | **By the end of the lesson, the learner**  **should be able to:-**  Outline factors affecting respiration | Class discussion | Textbooks | KLB BK 2 Pg 81  Oxford BK 2 Pg 79 |  |
|  | 3,4  &5 | Excretion and  Homeostasis  Introduction  Excretion in plants | **By the end of the lesson, the learner**  **should be able to:-**  Explain difference between egestion  and excretion | Demonstrate transpiration  from potted plant | Potted plant  Polythene paper  Thread | KLB BK 2 Pg 83  Oxford BK 2 Pg 86 |  |
| 9 | 1 | Revision  Respiration in plants  and animals | **By the end of the lesson, the learner**  **should be able to:-**  Make corrections on areas/questions  not well done | Class discussion | Question papers | Past question papers |  |
| 10 | 1-5 |  | **By the end of the lesson, the learner**  **should be able to:-**  Outline physiological processes for  elimination of wastes in amoeba | Notes taking | Textbooks | KLB BK 2 Pg 84-85  Oxford BK 2 Pg 88 |  |
| 11 | 1&2 | Mammalian skin  Introduction | **By the end of the lesson, the learner**  **should be able to:-**  - State parts of the body covered by the  skin | Note taking  Observation of specimen | Preserved specimen i.e.  Snake, rats. | KLB BK 2 Pg 84  Oxford BK 2 Pg 88 |  |
|  | 3-5 | Structure of mammalian  skin | **By the end of the lesson, the learner**  **should be able to:-**  - Describe structure and function of  skin | Drawing and labeling | Charts  Micro-viewer  Microfilm | KLB BK 2 Pg 85-86  Oxford BK 2 Pg 89 |  |
| 12 | 1-5 | Functions of parts of  the mammalian skin | **By the end of the lesson, the learner**  **should be able to:-**  Outline adaptations of the skin to its  functions | Observing charts of the  skin structure  Class discussion | Charts | KLB BK 2 Pg 86-87  Oxford BK 2 Pg 90 |  |
| 13 | 1-5 | Excretion process by  the skin | **By the end of the lesson, the learner**  **should be able to:-**  List excretory parts of the skin | Class discussion | Charts  Textbooks |  |  |
| 14 | 1-5 | **END OF TERM EXAMINATIONS** | | | | |  |

**BIOLOGY SCHEMES OF WORK**

**FORM TWO 2016**

**TERM III**

**REFERENCES:**

1. KLB Secondary Biology Form 1 Students Book KLB BK 1
2. KLB Secondary Biology Form 2 Students Book KLB BK 2
3. Oxford Biology Book Form 1. Oxford BK 1
4. Oxford Biology Book Form 2. Oxford BK 2

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|  |  | **SCHOOL OPENING** | | | | |  |
| 1 | 1&2 | Revision of end of  Term II exams | **By the end of the lesson, the learner**  **should be able to:-**  Make corrections on questions not well  answered | Answering questions | Question papers |  |  |
|  | 3,4  &5 | Excretion and  Homeostasis.  Structure and role of  lungs in excretion | **By the end of the lesson, the learner**  **should be able to:-**  Outline structure of lungs and relate it  to excretion | Class discussion  Note taking | Chart  Model | KLB BK 2 Pg 87-88  Oxford BK 2 Pg 88 |  |
| 2 | 1,2  &3 | Structure and function  of mammalian kidney | **By the end of the lesson, the learner**  **should be able to:-**  Describe two regions of the kidney | Drawing and labeling  Notes taking  Class discussion | Textbooks  Charts | KLB BK 2 Pg 88-89  Oxford BK 2 Pg 90 |  |
|  | 4&5 | Structure of nephron | **By the end of the lesson, the learner**  **should be able to:-**  Draw, label and state functions of the  Nephron | Drawing  Labeling | Textbooks  Charts | KLB BK 2 Pg 90-91  Oxford BK 2 Pg 92 |  |
| 3 | 1&2 | **CAT I** | | | | |  |
|  | 3,4  &5 | Ultra filtration in  Nephron | **By the end of the lesson, the learner**  **should be able to:-**  Outline ultra filtration | Notes taking | Textbooks | KLB BK 2 Pg 92  Oxford BK 2 Pg 93 |  |
| 4 | 1,2  &3 | Re-absorption and  Urine Formation | **By the end of the lesson, the learner**  **should be able to:-**  State physiological processes involved  in re-absorption | Class discussion  Notes taking | Textbooks | KLB BK 2 Pg 92  Oxford BK 2 Pg 93 |  |
|  | 4&5 | Revision  Methods of excretion  in plants | **By the end of the lesson, the learner**  **should be able to:-**  Outline methods of excretion in plants | Class discussion | Question papers | Past examinations |  |
| 5 | 1,2  &3 | Kidney Diseases | **By the end of the lesson, the learner**  **should be able to:-**  Describe disorders of the kidney | Taking notes | Textbooks | KLB BK 2 Pg 93  Oxford BK 2 Pg 94 |  |
|  | 4&5 | The liver | **By the end of the lesson, the learner**  **should be able to:-**  Outline homeostatic functions of the  Kidney | Notes taking | Textbooks | KLB BK 2 Pg 93-94  Oxford BK 2 Pg 97 |  |
| 6 | 1&2 | **CAT II** | | | | |  |
|  | 3,4  &5 | Functions of the Liver | **By the end of the lesson, the learner**  **should be able to:-**  Explain meaning of deamination and  Thermoregulation | Class discussion | Textbooks | KLB BK 2 Pg 95-96  Oxford BK 2 Pg 98 |  |
| 7 | 1,2  &3 | Liver diseases | **By the end of the lesson, the learner**  **should be able to:-**  List liver diseases | Taking notes | Textbooks | KLB BK 2 Pg 96-97  Oxford BK 2 Pg 103 |  |
|  | 4&5 | Negative and Positive  Feedback | **By the end of the lesson, the learner**  **should be able to:-**  State what negative and positive  feedback is | Taking notes | Textbooks | KLB BK 2 Pg 98  Oxford BK 2 Pg 99 |  |
| 8 | 1&2 | Role of Hypothalamus  in thermoregulation | **By the end of the lesson, the learner**  **should be able to:-**  - State what thermoregulation is  - State the role of hypothalamus in  thermoregulation | Class discussion | Textbooks | KLB BK 2 Pg 100 |  |
|  | 3-5 | Skin and  Thermoregulation and Behavioral  activities that keep  temperature constant | **By the end of the lesson, the learner**  **should be able to:-**  - Distinguish between ectotherm and  Endotherms  - State the role of sweat glands and  blood vessels in thermoregulation  - Outline behavioral activities that  Maintain body temperature | Class discussion |  | KLB BK 2  Pg 100-101  Oxford BK 2 Pg 97 |  |
| 9 | 1,2  &3 | Osmoregulation | **By the end of the lesson, the learner**  **should be able to:-**  State organs that eliminate excess water  and mineral salts from the blood stream | Class discussion | Textbooks | KLB BK 2  Pg 100-101  Oxford BK 2 Pg 97 |  |
|  | 4&5 | Regulation of blood  Sugar | **By the end of the lesson, the learner**  **should be able to:-**  List symptoms of diabetes mellitus | Notes taking | Textbooks | KLB BK 2  Pg 100-103 |  |