**BIOLOGY SCHEMES OF WORK**

**FORM ONE 2016**

**TERM I**

**REFERENCES:**

1. KLB Secondary Biology Form 1 Students Book (KLB BK 1)
2. Comprehensive secondary Biology
3. Golden tips Biology

Compiled by Schools Net Kenya (SNK) in partnership with Jospa Publishers | P.O. Box 3029 – 00200 Nairobi |

Coordinated by KENPRO, Macjo Arcade, 4th Floor, Suite 15E, Off Magadi Road, Ongata Rongai |Tel: +254202319748 |

E-mail: [infosnkenya@gmail.com](mailto:infosnkenya@gmail.com) | Website: [www.schoolsnetkenya.com/](http://www.schoolsnetkenya.com/)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **WEEK** | **LESSON** | **TOPIC** | **SUB - TOPIC** | **OBJECTIVES** | **LEARNING/TEACHING ACTIVITIES** | **LEARNING/TEACHING RESOURCES** | **REFERENCES** | **REMARKS** |
| 5 | 1 | INTRODUCTION TO BIOLOGY | Definition of Biology | By the end of the lesson, the learner should be able to:   1. Define Biology 2. List the branches of Biology | * Define Biology * Linking biology with the science that students learnt in primary | * Charts on various disciplines | * Comprehensive secondary Biology students Bk. 1 page 1 * Teachers bk. 1 pages 1-4 * KLB secondary Biology * Students book Page 1 * Golden tips Biology Page 1 |  |
|  | 2 | INTRODUCTION TO BIOLOGY | Importance of Biology  Characteristics of organisms | By the end of the lesson, the learner should be able to:   1. Explain the importance of Biology 2. State and explain some of the characteristics of organisms | * Explain the importance of Biology * Naming common Characteristics of organisms. | * Organisms in the school compound * Charts on the characteristics of organisms. | * Comprehensive secondary Biology students Bk. 1 page 1-2 * Teachers bk. 1 pages 1-4 * KLB secondary Biology * Students book Page 1-2 * Golden tips Biology Page 1 * KLB teachers book 1 pages 14-16 |  |
|  | 3-4 | INTRODUCTION TO BIOLOGY | Characteristics of organisms  External features of plants and animals | By the end of the lesson, the learner should be able to:   1. State and explain some of the general characteristics of organisms 2. Explain the external features of plants and animals 3. Write down the difference between plants and animals | * Discussion on the other general characteristics of organisms * Collecting, observing and recording external features of plants and animals. | * Organisms in the school compound * Charts on external features of plants and animals | * Comprehensive secondary Biology students Bk. 1 page 2-3 * Teachers bk. 1 pages 1-4 * KLB secondary Biology * Students book Page 2-6 * Golden tips Biology Page 1-2 * KLB teachers book 1 pages 14-16 * Gateway secondary Biology pages 1-3 |  |
| 6 | 1 | CLASSIFICATION 1 | Definition  Use of magnifying lens | By the end of the lesson, the learner should be able to:   1. Define classification 2. Use the magnifying lens to observe the external features of plants/ animals | * Define classification * Drawing of a magnifying lens * Using magnifying lens to observe the external features of plants and animals * Discussion on how to calculate magnification | * Magnifying lens * Different specimen of plants and animals * Rulers with measurement in mm * Chart on external features of plants and animals | * Comprehensive secondary Biology students Bk. 1 page 5 * Teachers bk. 1 pages 5-10 * KLB secondary Biology * Students book Page 8 * Golden tips Biology Page 3-5 * KLB teachers book 1 pages 14-16 * Gateway secondary Biology pages 5-12 |  |
|  | 2 | CLASSIFICATION 1 | Observation of features of organisms  Plant leaf forms | By the end of the lesson, the learner should be able to:   1. Record observations of the main external features of plant leaf form 2. Draw different types of leaf forms | * Observing, recording the main external features of the leaf forms of plants | * Different types of leaves * Chart on different types of leaves | * Comprehensive secondary Biology students Bk. 1 page 6-8 * Teachers bk. 1 pages 5-10 * KLB secondary Biology * Students book Page 8-10 * Golden tips Biology Page 4-5 * KLB teachers book 1 pages 17-20 |  |
|  | 3-4 | CLASSIFICATION 1 | External features of plants and animals | By the end of the lesson, the learner should be able to:   1. Observe, record and draw the main external features of plants 2. Observe record and draw the main external features of animals | * Observing, recording and drawing the main external features of plants * Observing, recording and drawing the main external features of animals | * Different types of stems and roots * Different types of small animals * Chart on features of plants and animals | * Comprehensive secondary Biology students Bk. 1 page 8-12 * Teachers bk. 1 pages 5-10 * KLB secondary Biology * Students book Page 10-14 * Golden tips Biology Page 3 |  |
| 7 | 1-2 | CLASSIFICATION 1 | Necessity and significance of classification  Major units of classification | By the end of the lesson, the learner should be able to:   1. State the necessity and significance of classification 2. Name the major units of classification 3. Name the five kingdoms of living things | * Discussion on the necessity and significance of classification | * Charts on classification * Charts with the five kingdoms and examples in each case. | * Comprehensive secondary Biology students Bk. 1 page 12-13 * Teachers bk. 1 pages 5-10 * KLB secondary Biology * Students book Page 14-15 * Golden tips Biology Page 6-12 * KLB teachers book 1 pages 17-20 * Gateway secondary Biology pages 5-12 |  |
|  | 3-4 | CLASSIFICATION 1 | Taxonomic units in plants and animal kingdom | By the end of the lesson, the learner should be able to:   1. List the taxonomic units in plant and animal kingdoms 2. Classify maize and human beings | * Naming taxonomic units in plants and animal kingdoms * Classification of maize and human beings | * Charts on Classification of maize and human beings | * Comprehensive secondary Biology students Bk. 1 page 13-14 * Teachers bk. 1 pages 5-10 * KLB secondary Biology * Students book Page 14 * Golden tips Biology Page 6-12 * KLB teachers book 1 pages 17-20 * Gateway secondary Biology pages 5-12 |  |
| 8 | 1-2 | CLASSIFICATION 1 | Binomial nomenclature in naming organisms | By the end of the lesson, the learner should be able to:   1. Define Binomial nomenclature 2. State the principles of Binomial nomenclature In naming organisms | * Defining Binomial nomenclature on the principles of Binomial nomenclature * Classification of given organisms using generic and specific names | Charts on Binomial nomenclature | * Comprehensive secondary Biology students Bk. 1 page 14 * Teachers bk. 1 pages 5-10 * KLB secondary Biology * Students book Page 15-16 * Golden tips Biology Page 6 * KLB teachers book 1 pages 17-20 * Gateway secondary Biology pages 5-12 |  |
|  | 3-4 | CLASSIFICATION 1 | Collection of plants and animals | By the end of the lesson, the learner should be able to:   1. Use collecting nets, cutting instructions instruments and hand lens 2. Preserve the collected specimen | * Collecting plants and animals * Preserving Collecting plants and animals collected | * Specimen bottle * Sweep nets * Cotton wool * Forceps * chloroform | * Comprehensive secondary Biology students Bk. 1 page 14-16 * Teachers bk. 1 pages 5-10 * KLB secondary Biology * Students book Page 9 * Golden tips Biology Page 6-12 |  |
| 9 | 1-2 | CLASSIFICATION 1 | Grouping of organisms according to their similarities | By the end of the lesson, the learner should be able to:   1. Observe and group collected and preserved specimen according to their similarities | * Observing and grouping animals according to their similarities * Observing and grouping plants according to their similarities | * Collected and preserved specimen * Hand lens | * Comprehensive secondary Biology students Bk. 1 page 15 * Teachers bk. 1 pages 5-10 * KLB secondary Biology * Students book Page 15-16 * Golden tips Biology Page 7-9 * KLB teachers book 1 pages 17-20 |  |
|  | 3-4 | THE CELL | Introduction to light microscope | By the end of the lesson, the learner should be able to:   1. Define a cell 2. Draw and label the light microscope | * Description of a cell * Drawing and labeling the light microscope | * Light microscope * Diagram of light microscope | * Comprehensive secondary Biology students Bk. 1 page 17 * Teachers bk. 1 pages 11-19 * KLB secondary Biology * Students book Page 18 * Golden tips Biology Page 15-16 * KLB teachers book 1 pages 23-25 |  |
| 10 | 1-2 | THE CELL | Parts of the light microscope and their functions  Calculation of magnification using light microscope | By the end of the lesson, the learner should be able to:   1. Identify parts of the light microscope and state their functions 2. Describe how to care for a light microscope 3. Describe how a light microscope is used. | * Discussion on parts of a light microscope * Caring for the light microscope * Demonstration on how to use the light microscope * Prepared slides | * Light microscope * Chart of light microscope | * Comprehensive secondary Biology students Bk. 1 page 20 * Teachers bk. 1 pages 11-19 * KLB secondary Biology * Students book Page 21 * Golden tips Biology Page 17-18 * KLB teachers book 1 pages 23-25 |  |
|  | 3-4 | THE CELL | Plant and animal cells as seen under a light microscope  Calculation of magnification using light microscope | By the end of the lesson, the learner should be able to:   1. Draw and label plant and animal cells as seen under a light microscope 2. Calculate the magnification of objects as seen under a light microscope | * Drawing and labeling of plant and animal cells as seen under a light microscope * Demonstration on how to calculate magnification of objects as seen under a light microscope | * Charts of plants and animal cells as seen under a light microscope * Microscope | * Comprehensive secondary Biology students Bk. 1 page 20 * Teachers bk. 1 pages 11-19 * KLB secondary Biology * Students book Page 18-20 * Golden tips Biology Page 15-17 * KLB teachers book 1 pages 23-25 * Gateway secondary biology pages 26-32 |  |
| 11 | 1-2 | THE CELL | Using the light microscope with prepared slides | By the end of the lesson, the learner should be able to:   1. Observe a prepared slide under a light microscope 2. Prepare temporary slide of onion epidermis and observe it under a light microscope | * Permanent slides of animal and plant cells * Light microscope * Microscope slide * Cover slip * scalpel * Distilled water * Iodine solution * Onion bulb * Droppers * Pointed forceps * Glass rod * Mounted needle * Blotting paper | * Observing prepared slides of plant and animal cells * Preparing and mounting onion epidermal cells | * Comprehensive secondary Biology students Bk. 1 page 33 * Teachers bk. 1 pages 11-19 * KLB secondary Biology * Students book Page 22 * Golden tips Biology Page 16 * KLB teachers book 1 pages 23-25 * Gateway secondary biology pages 26-32 * Longman biology page 31-32 |  |
|  | 3-4 | THE CELL | Cell structure as seen under the electron microscope | By the end of the lesson, the learner should be able to:   1. Draw and label plant and animal cells as seen under electron microscope | * Drawing and labeling plant and animal cells as seen under an electron microscope | * Diagrams of plant and animal cells as seen under electron microscope | * Comprehensive secondary Biology students Bk. 1 page 19-20 * Teachers bk. 1 pages 11-19 * KLB secondary Biology * Students book Page 23 * Golden tips Biology Page 18 * KLB teachers book 1 pages 23-25 * Gateway secondary biology pages 26-32 |  |
| 12 | 1 | THE CELL | Physiology of the cell  Cell wall  Cell membrane  cytoplasm | By the end of the lesson, the learner should be able to:   * Describe the structure and function of the cell * Cell wall * Cell membrane * cytoplasm | * discussion on the functions of cell components   - cell wall  - cell membrane  - cytoplasm   * drawing and labeling these parts of the cell | * chart on plant and animal cells as seen under electron microscope | * Comprehensive secondary Biology students Bk. 1 page 23-24 * Teachers bk. 1 pages 11-19 * KLB secondary Biology * Students book Page 24-26 * Golden tips Biology Page 18-19 * KLB teachers book 1 pages 23-25 * Gateway secondary biology pages 26-32 |  |
|  | 2 | THE CELL | Cell organelles  Estimating the size of a cell | By the end of the lesson, the learner should be able to:   * Describe the structure and function of the cell organelles * Estimate the size of a cell as seen in the field of view of a microscope | * discussion on the functions of cell organelles * Drawing and labeling the cell and organelles * Explain how to estimate the size of onion epidermal cells * Estimating the size of onion epidermal cells | * chart on various cell organelles * cover slip * iodine solution * distilled water * scalpel * two droppers * pointed scalpel * mounting needle * filter paper * transparent ruler with mm markings * onion bulb | * Comprehensive secondary Biology students Bk. 1 page 24-33 * Teachers bk. 1 pages 11-19 * KLB secondary Biology * Students book Page 27-28 * Golden tips Biology Page 15-20 * KLB teachers book 1 pages 23-25 * Gateway secondary biology pages 27-32 * Longman biology pages 30-31 |  |
|  | 3-4 | THE CELL | Comparison between plant and animal cells  Cell specialization   * Tissues * Organs * Organ systems | By the end of the lesson, the learner should be able to:   * Write down the differences between plants and animal cells * Write down similarities between plant and animal cells * List down specialized plant and animal cells * State the modifications and functions of specialized cells * Define tissues, organs and organ systems * Give examples of tissues organs and organ systems | * Distinguishing between plant and animal cells * Naming specialized cells and their functions * Drawing specialized cells * Explaining modification of cells to their functions | * Table summarizing the differences between plant and animal cells * Charts on similarities between plant and animal cells * Charts on various specialized cells * Chart on plant and animal tissues | * Comprehensive secondary Biology students Bk. 1 page 22-32 * Teachers bk. 1 pages 11-19 * KLB secondary Biology * Students book Page 26-31 * Golden tips Biology Page 17-20 * KLB teachers book 1 pages 23-25 * Gateway secondary biology pages 26-32 * Longman biology pages 32 * Fly higher series pages 6-7 |  |
| **13** |  | | **REVISION AND EXAMINATIONS** | | | | | |

**BIOLOGY SCHEMES OF WORK**

**FORM ONE 2016**

**TERM III**

**REFERENCES:**

1. KLB Secondary Biology Form 1 Students Book (KLB BK 1)
2. Oxford Book 1 (Oxford BK 1)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **WK** | **LSN** | **TOPIC/S-TOPIC** | **OBJECTIVES** | **L/ACTIVITIES** | **L/T AIDS** | **REFERENCE** | **REMARKS** |
| 1 |  | **REPORTING AND REVISION OF LAST TERM’S EXAMS** | | | | |  |
| 2 | 1,2  &3 | Chemicals of Life  Lipids | **By the end of the lesson, the learner**  **should be able to:-**  Describe functions of lipids and list the sources of lipids in human diet | Discussion  Note taking  Lab test for lipids  Observing | Textbooks  Filter paper, Ethanol  Water, beaker  Olive oil | Oxford BK 1  Pg 61-62  KLB BK 1 Pg 63-64 |  |
|  | 4&5 | Functions of lipids | **By the end of the lesson, the learner**  **should be able to:-**  Describe the functions of lipids | Discussion  Note taking | Textbooks | Oxford BK 1  Pg 61  KLB BK 1 Pg 63-64 |  |
| 3 | 1,2  &3 | Proteins | **By the end of the lesson, the learner**  **should be able to:-**  Outline properties of proteins and  carryout test for proteins | Discussion, observing  Demonstrating how  proteins form colloidal  suspensions | Groundnuts  Water, pestle and  Motar  Eggs | Oxford BK 1  Pg 60-62  KLB BK 1 Pg 65-66 |  |
|  | 4&5 | Functions of Proteins  Enzymes | **By the end of the lesson, the learner**  **should be able to:-**  Outline functions of proteins and their  properties | Discussion  Note taking  Question answering | Textbooks | Oxford BK 1  Pg 61  KLB BK 1 Pg 66-67 |  |
| 4 | 1 | **CAT I** | | | | |  |
|  | 2&3 | Factors affecting  enzyme action | **By the end of the lesson, the learner**  **should be able to:-**  - Record and make observations on  decomposition of hydrogen peroxide  by catalase enzyme in Irish potato  - Explain the factors that effect the rate  of enzymatic action | Experiment on factors  affecting the rate of  enzymatic action  Discussion  Observing | Irish potato  Hydrogen peroxide  Test tubes  Scapel | Oxford BK 1  Pg 62-63  KLB BK 1 Pg 67-72 |  |
|  | 4&5 | Laboratory test for  Proteins | **By the end of the lesson, the learner**  **should be able to:-**  Carry out lab tests for proteins and  make observations | Lab experiment  Observation  Note taking | Eggs  Test tubes  Sodium hydroxide  Copper sulphate solution | Oxford BK 1  Pg 68  KLB BK 1 Pg 66-67 |  |
| 5 | 1,2  &3 | Nutrition in Animals  Heterotrophism | **By the end of the lesson, the learner**  **should be able to:-**  Distinguish between symbiosis and  predation; saprophytism and parasitism | Observing jaws  Listing types of teeth  State the different types  of heterotrophism | Jaws of goats  Textbooks | Oxford BK 1  Pg 73-74  KLB BK 1 Pg 72-73 |  |
|  | 4&5 | Dentition  Herbivores, carnivores,  omnivores, Milk teeth  Permanent teeth | **By the end of the lesson, the learner**  **should be able to:-**  Work out dental formular in skull of  named animals | Illustrations  Note taking  Question answering | Jaws of carnivores,  herbivores, photograph  of human skull | Oxford BK 1  Pg 74-75  KLB BK 1 Pg 73-75 |  |
| 6 | 1,2,3  4&5 | Structure of Tooth  Dental Diseases | **By the end of the lesson, the learner**  **should be able to:-**  Outline the internal parts of the tooth  and describe dental diseases in humans | Drawing  Labeling  Discussion | Diagram of a tooth  Textbooks | Oxford BK 1  Pg 77-78  KLB BK 1 Pg 75-78 |  |
| 7 | 1, 2  &3 | Digestion  Food processing along  the digestive tract  Digestion in the mouth | **By the end of the lesson, the learner**  **should be able to:-**  Outline digestive role of the teeth,  tongue and saliva | Discussion  Note taking | Textbooks | Oxford BK 1  Pg 79-80  KLB BK 1 Pg 78-80 |  |
|  | 4&5 | **CAT 2** | | | |  |  |
| 8 | 1, 2  &3 | Food digestion in the  stomach, duodenum  and ileum | **By the end of the lesson, the learner**  **should be able to:-**  Outline the role of enzymes in the  stomach, duodenum and ileum and  how food is digested in them | Discussion  Drawing  Note taking | Diagram of digestive  system in rabbits | Oxford BK 1  Pg 80-81  KLB BK 1 Pg 80-81 |  |
|  | 4&5 | Absorption of digested  food  - Egestion  - Assimilation | **By the end of the lesson, the learner**  **should be able to:-**  Outline the role of glucose, amino acids  mineral salts, fatty acids and glycerol  in the bodies of animals and explain  how the ileum is adapted to its  absorption role | Group discussion  Note taking  Question answering | Textbooks | Oxford BK 1  Pg 83-84  KLB BK 1 Pg 83-84 |  |
| 9&10 |  | **TOPICAL REVISION** | | | | |  |
| 11 |  | **END YEAR EXAMS** | | | | |  |
| 12 |  | **PREPARATION OF REPORTS AND CLOSING** | | | | |  |