**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

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| **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 BiologyCharacteristics 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 organismsPlant 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 classificationMajor 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
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|  | 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 functionsCalculation 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
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|  | 3-4 | THE CELL | Plant and animal cells as seen under a light microscopeCalculation 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
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|  | 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 cellCell wallCell membranecytoplasm  | 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 organellesEstimating 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
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|  | 3-4 | THE CELL | Comparison between plant and animal cellsCell 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)

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| **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 LifeLipids | **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 | DiscussionNote takingLab test for lipidsObserving | TextbooksFilter paper, EthanolWater, beakerOlive oil | Oxford BK 1 Pg 61-62KLB 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 | DiscussionNote taking | Textbooks | Oxford BK 1 Pg 61KLB 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 andcarryout test for proteins | Discussion, observingDemonstrating howproteins form colloidalsuspensions | GroundnutsWater, pestle and MotarEggs | Oxford BK 1 Pg 60-62KLB BK 1 Pg 65-66 |  |
|  | 4&5 | Functions of ProteinsEnzymes | **By the end of the lesson, the learner** **should be able to:-**Outline functions of proteins and theirproperties  | DiscussionNote takingQuestion answering | Textbooks | Oxford BK 1 Pg 61KLB 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 factorsaffecting the rate ofenzymatic actionDiscussionObserving | Irish potatoHydrogen peroxideTest tubesScapel | Oxford BK 1 Pg 62-63KLB 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 andmake observations | Lab experimentObservationNote taking | EggsTest tubesSodium hydroxideCopper sulphate solution | Oxford BK 1 Pg 68KLB BK 1 Pg 66-67 |  |
| 5 | 1,2&3 | Nutrition in AnimalsHeterotrophism | **By the end of the lesson, the learner** **should be able to:-**Distinguish between symbiosis andpredation; saprophytism and parasitism | Observing jawsListing types of teethState the different types of heterotrophism | Jaws of goatsTextbooks | Oxford BK 1 Pg 73-74KLB BK 1 Pg 72-73 |  |
|  | 4&5 | DentitionHerbivores, carnivores,omnivores, Milk teethPermanent teeth | **By the end of the lesson, the learner** **should be able to:-**Work out dental formular in skull ofnamed animals | IllustrationsNote takingQuestion answering | Jaws of carnivores,herbivores, photographof human skull | Oxford BK 1 Pg 74-75KLB BK 1 Pg 73-75 |  |
| 6 | 1,2,34&5 | Structure of ToothDental Diseases | **By the end of the lesson, the learner** **should be able to:-**Outline the internal parts of the toothand describe dental diseases in humans | DrawingLabeling Discussion | Diagram of a toothTextbooks | Oxford BK 1 Pg 77-78KLB BK 1 Pg 75-78 |  |
| 7 | 1, 2&3 | DigestionFood processing alongthe digestive tractDigestion in the mouth | **By the end of the lesson, the learner** **should be able to:-**Outline digestive role of the teeth,tongue and saliva | DiscussionNote taking | Textbooks | Oxford BK 1 Pg 79-80KLB BK 1 Pg 78-80 |  |
|  | 4&5 | **CAT 2** |  |  |
| 8 | 1, 2&3 | Food digestion in thestomach, 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 | DiscussionDrawingNote taking | Diagram of digestivesystem in rabbits | Oxford BK 1 Pg 80-81KLB BK 1 Pg 80-81 |  |
|  | 4&5 | Absorption of digestedfood- Egestion- Assimilation | **By the end of the lesson, the learner** **should be able to:-**Outline the role of glucose, amino acidsmineral salts, fatty acids and glycerolin the bodies of animals and explain how the ileum is adapted to itsabsorption role | Group discussionNote takingQuestion answering | Textbooks | Oxford BK 1 Pg 83-84KLB BK 1 Pg 83-84 |  |
| 9&10 |  | **TOPICAL REVISION** |  |
| 11 |  | **END YEAR EXAMS** |  |
| 12 |  | **PREPARATION OF REPORTS AND CLOSING** |  |