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| **BIOLOGY FORM 1 SCHEMES OF WORK – TERM 1 2016**  **MR. FEISAL KERROW AHMED TSC NO 573297** | | | | | | | | |
| **WK** | **LS** | **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 EXAMINATION** | | | | | | | |

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| **BIOLOGY FORM 1 SCHEMES OF WORK – TERM 2** | | | | | | | | |
| **WEEK** | **LESSON** | **TOPIC** | **SUB - TOPIC** | **OBJECTIVES** | **LEARNING/TEACHING ACTIVITIES** | **LEARNING/TEACHING RESOURCES** | **REFERENCES** | **REMARKS** |
| 1 | 1-2 | CELL PHSIOLOGY | Cell physiology  Properties of the cell membrane | By the end of the lesson, the learner should be able to:   * Define the term cell physiology * Describe the structure and properties of cell membrane | * Defining the term cell physiology * Describing the structure of the cell membrane and its properties | * Charts on the structure of the cell membrane | * Comprehensive secondary Biology students Bk. 1 page 37-38 * Teachers bk. 1 pages 20-30 * KLB secondary Biology * Students book Page 32-33 * KLB teachers book 1 pages 28-32 * Gateway secondary biology pages 32-36 |  |
| 2 | CELL PHSIOLOGY | Diffusion | By the end of the lesson, the learner should be able to:   * Define diffusion | * Defining diffusion * Discussion on diffusion in liquids, gasses and solids | * Charts on distribution of molecules during distribution | * Comprehensive secondary Biology students Bk. 1 page 38 * Teachers bk. 1 pages 20-30 * KLB secondary Biology * Students book Page 33 * KLB teachers book 1 pages 28-32 * Gateway secondary biology pages 32-36 |  |
| 3-4 | CELL PHSIOLOGY | Diffusion | By the end of the lesson, the learner should be able to:  Carry out experiments to demonstrate   * diffusion in liquids * diffusion in gasses | * Carrying out experiments on diffusion in liquids and gasses * Discussions of results from experiments | * Beaker * Potassium permanganate crystals * Cold water * Glass tube * Strong smelling perfume | * Comprehensive secondary Biology students Bk. 1 page 38-39 * Teachers bk. 1 pages 20-30 * KLB secondary Biology * Students book Page 33-34 * KLB teachers book 1 pages 28-32 * Gateway secondary biology pages 32-36 * Golden tips biology pages 23-24 |  |
| 2 | 1 | CELL PHSIOLOGY | Factors affecting Diffusion | By the end of the lesson, the learner should be able to:   * Explain the factors affecting diffusion * Explain the role of diffusion in living things | * Discussing the factors affecting diffusion * Discussing the role of diffusion in living things | * Charts on factors affecting diffusion | * Comprehensive secondary Biology students Bk. 1 page 39 * Teachers bk. 1 pages 20-30 * KLB secondary Biology * Students book Page 35-36 * KLB teachers book 1 pages 28-32 * Gateway secondary biology pages 32-36 * Golden tips biology pages 24 * Longman biology page 36 |  |
| 2 | CELL PHSIOLOGY | Osmosis | By the end of the lesson, the learner should be able to:   * Define osmosis * Describe movement of water molecules across semi-permeable membrane | * Defining osmosis * Describing osmosis across a semi -permeable membrane | * Diagram on movement of water molecules across a semi -permeable membrane | * Comprehensive secondary Biology students Bk. 1 page 40 * Teachers bk. 1 pages 20-30 * KLB secondary Biology * Students book Page 36-38 * KLB teachers book 1 pages 28-32 * Gateway secondary biology pages 33-36 * Golden tips biology pages 24-25 * Longman biology page 37 |  |
| 3-4 | CELL PHSIOLOGY | Osmosis (practical lesson) | By the end of the lesson, the learner should be able to:   * demonstrate osmosis by using a Viking tubing * carry out an experiment on osmosis using Irish potatoes | * carry out an experiment on osmosis using a Viking tubing * carry out an experiment on osmosis using Irish potatoes * Discussion on results of both experiments | * Viking tubing * Thread * Tap water * Sucrose solution * Irish potatoes * Scalpel * Cork borer * Transparent ruler * Distilled water * 20% sucrose solution * Two petri-dishes * Tissue paper | * Comprehensive secondary Biology students Bk. 1 page 46 * Teachers bk. 1 pages 20-30 * KLB secondary Biology * Students book Page 37-39 * KLB teachers book 1 pages 28-32 * Gateway secondary biology pages 34-36 * Golden tips biology pages 24-25 * High flyer series pages 10-11 |  |
| 3 | 1-2 | CELL PHSIOLOGY | Terms used in the study of Osmosis | By the end of the lesson, the learner should be able to: define and describe the terms used in the study of osmosis such as:   * Osmotic pressure * Osmotic potential * Isotonic solution * Hypertonic solution * Hypotonic solution * Turgor pressure * Hemolysis * Wall pressure * Plasmolysis * Deplasmolysis | * Defining terms used in the study of osmosis * Discussion on the terms used in the study of osmosis | * Charts on turgid cells and plasmolysed cells | * Comprehensive secondary Biology students Bk. 1 page 42 * Teachers bk. 1 pages 20-30 * KLB secondary Biology * Students book Page 37-39 * KLB teachers book 1 pages 28-32 * Gateway secondary biology pages 33-36 * Golden tips biology pages 24-26 * High flyer series pages 37 |  |
|  | 3-4 | CELL PHSIOLOGY | Osmosis in plant cells | By the end of the lesson, the learner should be able to carry out an experiment on selective permeability of membrane | * carry out an experiment on selective permeability of membranes and movement of water in Irish potatoes | * Scalpel * Ruler * Means of heating * 3 Irish potatoes * 3 petri-dishes * Viking tubing * 20% starch solution * Iodine solution * 50cm3 beaker * thread | * Comprehensive secondary Biology students Bk. 1 page 47 * Teachers bk. 1 pages 20-30 * KLB secondary Biology * Students book Page 40-42 * KLB teachers book 1 pages 28-32 * Gateway secondary biology pages 34-36 * Golden tips biology pages 26 * Longman biology pages 37-38 * High flyer series pages 10 |  |
| 4 | 1 | CELL PHSIOLOGY | Factors affecting Osmosis  Role of osmosis in organisms | By the end of the lesson, the learner should be able to   * State factors affecting osmosis * Explain the role of osmosis in organisms * Explain the factors affecting osmosis | * Discussion on factors affecting osmosis * Discussion on the role of osmosis in organisms | * Charts on factors affecting osmosis and role of osmosis in organisms | * Comprehensive secondary Biology students Bk. 1 page 40-41 * Teachers bk. 1 pages 20-30 * KLB secondary Biology * Students book Page 43-44 * KLB teachers book 1 pages 28-32 * Gateway secondary biology pages 33 * Golden tips biology pages 27 * Longman biology pages 37 * High flyer series pages 10 |  |
| 2 | CELL PHSIOLOGY | Water relations in plant cells | By the end of the lesson, the learner should be able to   * Describe what happens when a plant cell is placed in a hypertonic, hypotonic or isotonic solution | * Discussion on how plant cells behave in hypertonic, hypotonic or isotonic solutions | * Charts on water movement in and out of plant cells | * Comprehensive secondary Biology students Bk. 1 page 42-43 * Teachers bk. 1 pages 20-30 * KLB secondary Biology * Students book Page 40-42 * KLB teachers book 1 pages 28-32 * Gateway secondary biology pages 34-36 * Golden tips biology pages 25-26 |  |
|  | 3-4 | CELL PHSIOLOGY | Plasmolysis in onion bulb cells | By the end of the lesson, the learner should be able to   * Carry out an experiment to show plasmolysis in epidermal cells of an onion bulb | * Carry out an experiment to show plasmolysis in epidermal cells from an onion bulb * Discussion of results of the experiment on movement of water in and out of the cells | * Distilled water * Two microscope slides * Two cover slips * 10% sucrose solution * Forceps * Dropper * Light microscope * Onion bulb * scalpel | * Comprehensive secondary Biology students Bk. 1 page 46 * Teachers bk. 1 pages 20-30 * KLB secondary Biology * Students book Page 42 * KLB teachers book 1 pages 28-32 * Gateway secondary biology pages 34-36 * Golden tips biology pages 26 * Longman Biology page 37 * High Flyer page 10 |  |
| 5 | 1 | CELL PHSIOLOGY | Water relations in animals | By the end of the lesson, the learner should be able to   * Describe osmosis of animal cells in a hypertonic solution | * Discussion on osmosis in animal cells when placed in hypertonic or hypotonic solution | * Charts on cremated animal cell and haemolyzed animal cell | * Comprehensive secondary Biology students Bk. 1 page 44 * Teachers bk. 1 pages 20-30 * KLB secondary Biology * Students book Page 40 * KLB teachers book 1 pages 28-32 * Gateway secondary biology pages 34-36 * Golden tips biology pages 25-26 * Longman Biology page 37 |  |
|  | 2 | CELL PHSIOLOGY | Active transport | By the end of the lesson, the learner should be able to   * List down factors affecting active transport * Define active transport * Define the role of active transport in living things | * Discussion on active transport factors affecting active transport and its role in organisms | * Charts on factors affecting active transport and role of active transport | * Comprehensive secondary Biology students Bk. 1 page 41-42 * Teachers bk. 1 pages 20-30 * KLB secondary Biology * Students book Page 44 * KLB teachers book 1 pages 28-32 * Gateway secondary biology pages 35-36 * Golden tips biology pages 27-28 * Longman Biology page 36 * High flyer series pages 10-11 |  |
|  | 3 and 4 | NUTRITION IN PLANTS | Meaning importance and types of nutrition  External structure of a leaf | By the end of the lesson, the learner should be able to   * Define nutrition * Write down the importance of nutrition * List down the modes of feeding in organisms * Draw and label the external structure of a leaf | * Discussion on definition of nutrition, importance and modes of feeding * Drawing and labeling the external structure of a leaf * Observing the external parts of a leaf | * Green leaves * Chart on the external structure of a leaf | * Comprehensive secondary Biology students Bk. 1 page 51 * Teachers bk. 1 pages 31-44 * KLB secondary Biology * Students book Page 48-49 * KLB teachers book 1 pages 37-55 * Gateway secondary biology pages 46-47 * Golden tips biology pages 31 * Longman Biology page 40 |  |
| 6 | 1 | NUTRITION IN PLANTS | internal structure of a leaf | By the end of the lesson, the learner should be able to   * Draw and label the internal structure of the leaf | * Drawing and labeling the internal structure of the leaf | * Chart on the internal structure of the leaf | * Comprehensive secondary Biology students Bk. 1 page 51-52 * Teachers bk. 1 pages 31-44 * KLB secondary Biology * Students book Page 50 * KLB teachers book 1 pages 47-48 * Gateway secondary biology pages 46-47 * Golden tips biology pages 32 * Longman Biology page 41 |  |
|  | 2 | NUTRITION IN PLANTS | Parts of a leaf and their functions | By the end of the lesson, the learner should be able to   * Name the parts of a leaf * State the functions of the parts of a leaf | * Discussion on the functions of the different parts of a leaf | * Chart on the internal and external structure of the leaf | * Comprehensive secondary Biology students Bk. 1 page 52-53 * Teachers bk. 1 pages 31-44 * KLB secondary Biology * Students book Page 50-51 * KLB teachers book 1 pages 37-55 * Gateway secondary biology pages 47-48 * Golden tips biology pages 33 * Longman Biology page 41 |  |
|  | 3 and 4 | NUTRITION IN PLANTS | photosynthesis | By the end of the lesson, the learner should be able to   * Define photosynthesis * Draw and label the chloroplast * Describe the process of photosynthesis | Discussion on photosynthesis , the structure of the chloroplasts and the stages involved in photosynthesis | * Chart on the stages of photosynthesis | * Comprehensive secondary Biology students Bk. 1 page 54-55 * Teachers bk. 1 pages 31-44 * KLB secondary Biology * Students book Page 53-54 * KLB teachers book 1 pages 37-55 * Gateway secondary biology pages 48-49 * Golden tips biology pages 33-34 |  |
| 7 | 1-2 | NUTRITION IN PLANTS | Importance of photosynthesis and factors affecting photosynthesis | By the end of the lesson, the learner should be able to   * List down the importance of photosynthesis * Explain some of the factors influencing photosynthesis | * Discussion on the importance of photosynthesis * Discussion factors influencing photosynthesis | * Chart on the factors influencing photosynthesis | * Comprehensive secondary Biology students Bk. 1 page 55-56 * Teachers bk. 1 pages 31-44 * KLB secondary Biology * Students book Page 55-59 |  |
|  | 3-4 | NUTRITION IN PLANTS | Factors affecting photosynthesis (continued) | By the end of the lesson, the learner should be able to   * Explain the factors affecting photosynthesis | * Discussion on factors influencing photosynthesis | * Variegated leaves * Charts on factors influencing photosynthesis | * Comprehensive secondary Biology students Bk. 1 page 56-57 * Teachers bk. 1 pages 31-44 * KLB secondary Biology * Students book Page 55-59 * KLB teachers book 1 pages 37-55 * Gateway secondary biology pages 48-49 * Golden tips biology pages 34 |  |
| 8 | 1-2 | NUTRITION IN PLANTS | Adaptation of the leaf to photosynthesis | By the end of the lesson, the learner should be able to   * Explain how the leaf is adapted to the process of photosynthesis | * Discussion on adaptations of the leaf to photosynthesis | * Green leaves * Chart showing internal structure of a leaf | * Comprehensive secondary Biology students Bk. 1 page 52-53 * Teachers bk. 1 pages 31-44 * KLB secondary Biology * Students book Page 51-52 * KLB teachers book 1 pages 37-55 * Gateway secondary biology pages 47 * Golden tips biology pages 32-33 |  |
|  | 3-4 | NUTRITION IN PLANTS | Factors influencing photosynthesis (practical lessons) | By the end of the lesson, the learner should be able to   * Test the presence of starch in a green leaf * Investigate whether chlorophyll is necessary for photosynthesis * Investigate whether light is necessary for photosynthesis | * Carrying out experiments on * -presence of starch in a leaf * -factors influencing photosynthesis in plants | * Green leaves * Boiling tube * Means of heating * Methylated spirit * Iodine solution * Dropper * White tile * Pair of forceps * Variegated leaf * Aluminum foil on carbon paper | * Comprehensive secondary Biology students Bk. 1 page 64-66 * Teachers bk. 1 pages 31-44 * KLB secondary Biology * Students book Page 55-59 * KLB teachers book 1 pages 37-55 * Gateway secondary biology pages 48-49 * Golden tips biology pages 35-36 * Longman biology 42 |  |
| 9 | 1-2 | NUTRITION IN PLANTS | Factors influencing photosynthesis (practical lessons) | By the end of the lesson, the learner should be able to carry out an experiment to investigate whether   * Carbon (IV) oxide is necessary for photosynthesis * Oxygen is produced during photosynthesis | * carry out an experiment to investigate whether   Carbon (IV) oxide is necessary for photosynthesis and whether Oxygen is produced during photosynthesis | * Potted plant * Heat source * Boiling tubes * Two conical flasks * Potassium hydroxide * Materials for testing for starch in a leaf * Test tubes * 500cm3 beaker * Funnel * Pod weed * Sodium hydrogen Carbonate   Wooden splint   * leaf | * Comprehensive secondary Biology students Bk. 1 page 66-67 * Teachers bk. 1 pages 31-44 * KLB secondary Biology * Students book Page 15-59 * KLB teachers book 1 pages 37-55 * Gateway secondary biology pages 48-49 * Golden tips biology pages 35-36 * Longman biology 42 |  |
|  | 3 | CONTINUOUS ASSESMENT TEST | Work covered since previous test | By the end of the lesson, the learner should be able   * To answer the questions asked | * Learner to answer the given questions * Teacher to supervise test | * Question paper * Marking scheme | * Work covered since previous test |  |
|  | 4 | NUTRITION IN PLANTS | Chemicals of life  carbohydrates | By the end of the lesson, the learner should be able to   * Define Chemicals of life * List down types of carbohydrates * Write down properties and functions of monosaccharaides | * Defining Chemicals of life * Discussion on  1. Types of   chemicals of life   1. Types of carbohydrates 2. Properties of monosaccharaides | * Samples of sources of carbohydrates, proteins, lipids and glucose | * Comprehensive secondary Biology students Bk. 1 page 57-58 * Teachers bk. 1 pages 31-44 * KLB secondary Biology * Students book Page 59-60 * KLB teachers book 1 pages 37-55 * Gateway secondary biology pages 49-50 |  |
| 10 | 1 | NUTRITION IN PLANTS | disaccharides | By the end of the lesson, the learner should be able to   * Define disaccharides * List properties and functions of disaccharides * Define hydrolysis and condensation | * Defining disaccharides * Discussion on properties and functions of disaccharides | * Charts on condensation and hydrolysis of disaccharides | * Comprehensive secondary Biology students Bk. 1 page 58 * Teachers bk. 1 pages 31-44 * KLB secondary Biology * Students book Page 60-61 * KLB teachers book 1 pages 37-55 * Gateway secondary biology page 50 |  |
|  | 2 | NUTRITION IN PLANTS | Polysaccharides  lipids | By the end of the lesson, the learner should be able to   * Define polysaccharides and lipids * Write down the properties of polysaccharides and lipids | * Defining polysaccharides and lipids * Discussion on properties and functions of polysaccharides and lipids | * Charts on properties of polysaccharides * Charts on properties of lipids | * Comprehensive secondary Biology students Bk. 1 page 58-61 * Teachers bk. 1 pages 31-44 * KLB secondary Biology * Students book Page 61-64 * KLB teachers book 1 pages 37-55 * Gateway secondary biology page 50-52 * Golden tips biology pages 37-40 |  |
|  | 3-4 | NUTRITION IN PLANTS | Food tests | By the end of the lesson, the learner should be able to carry out tests on   * Starch * Reducing sugars * Non-reducing sugar * Lipids * Proteins * Vitamin c | * Demonstration of experiments on food tests * Carry out experiments on food tests * Discussion on results obtained from experiments | * Food test reagents and apparatus * Benedicts solution * Dilute HCL * 0.5% copper sulphate * 10% sodium hydroxide * DCPIP * Iodine solution | * Comprehensive secondary Biology students Bk. 1 page 67-68 * Teachers bk. 1 pages 31-44 * KLB secondary Biology * Students book Page 61-64 * KLB teachers book 1 pages 37-55 * Gateway secondary biology page 51-52 * Golden tips biology pages 39-40 * Longman biology page 43 |  |
| 11 | 1 | NUTRITION IN PLANTS | proteins | By the end of the lesson, the learner should be able to   * Write down the properties and functions of proteins * Distinguish between carbohydrates, proteins and lipids | * Discussion on functions of proteins * Distinguishing between carbohydrates, proteins and lipids | * Charts on the properties of proteins * Charts on a comparison between carbohydrates, proteins and lipids | * Comprehensive secondary Biology students Bk. 1 page 60-61 * Teachers bk. 1 pages 31-44 * KLB secondary Biology * Students book Page 65-67 * KLB teachers book 1 pages 37-55 * Gateway secondary biology page 50-51 * Golden tips biology pages 38-39 * Longman biology page 43 |  |
|  | 2 | NUTRITION IN PLANTS | enzymes | By the end of the lesson, the learner should be able to   * Define enzymes * Write down the properties and functions of enzymes * Know the naming of the enzymes and their substrates * Explain the importance of enzymes | * Discussion on properties and functions of enzymes | * Charts on the properties enzymes | * Comprehensive secondary Biology students Bk. 1 page 62-64 * Teachers bk. 1 pages 31-44 * KLB secondary Biology * Students book Page 67-69 * KLB teachers book 1 pages 37-55 * Gateway secondary biology page 52-53 * Golden tips biology pages 42 |  |
|  | 3-4 | NUTRITION IN PLANTS | Factors affecting enzymes | By the end of the lesson, the learner should be able to carry out an experiment on   * Effect of temperature on enzymes * Effects of enzyme concentration on the rate of a reaction * Effect of PH on enzyme activities | * Carrying out an experiment on factors affecting enzymes | * Materials and apparatus for various experiments * Soaked beans * Hydrogen peroxide * Test tube (5) * Test tube rack * Water bath * Thermometer * Measuring cylinder * Watch * 10% starch solution * 0.1% and o.2% diastase * White tiles * Egg albumens * Distilled water * 2m HCL * 2m sodium hydrogen carbonate | * Comprehensive secondary Biology students Bk. 1 page 68-69 * Teachers bk. 1 pages 31-44 * KLB secondary Biology * Students book Page 67-69 * KLB teachers book 1 pages 37-55 * Gateway secondary biology page 53-55 * Golden tips biology pages 40-41 * Longman biology pages 43-44 * High flyer series pages 15-16 |  |
| 12-13 | **REVISION AND END OF TERM EXAMS** | | | | | | | |

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| **BIOLOGY FORM 1 SCHEMES OF WORK – TERM 3** | | | | | | | | |
| **WEEK** | **LESSON** | **TOPIC** | **SUB - TOPIC** | **OBJECTIVES** | **LEARNING/TEACHING ACTIVITIES** | **LEARNING/TEACHING RESOURCES** | **REFERENCES** | **REMARKS** |
| 1 | 1 | NUTRITION IN ANIMALS | Definition of heterotrophism  Modes of heterotrophic nutrition | By the end of the lesson, the learner should be able to   * Define hetetrophism * List down the different modes of heterotrophism and describe them | * Defining the term heterotrophism * Discussion on modes of heterotrophism | * Chart on modes of heterotrophism | * Comprehensive secondary Biology students Bk. 1 page 73 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 72 * KLB teachers book 1 pages 37-55 * Gateway secondary biology page |  |
|  | 2 | NUTRITION IN ANIMALS | Dentition  Types of teeth | By the end of the lesson, the learner should be able to   * Define dentition * Draw and label different types of teeth * Describe the structure of a tooth | * Defining the term dentition * Identifying and drawing different types of teeth | * Different types of teeth * Chart on different types of teeth | * Comprehensive secondary Biology students Bk. 1 page 74 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 73-76 * KLB teachers book 1 pages 37-55 |  |
|  | 3-4 | NUTRITION IN ANIMALS | Adaptations of teeth to their functions | By the end of the lesson, the learner should be able to:   1. Identify different types of teeth 2. Describe the adaptations of the teeth to their functions | * Discussions on the adaptations of teeth to their functions | * Different types of teeth * Chart on different types of teeth | * Comprehensive secondary Biology students Bk. 1 page 75 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 75 * KLB teachers book 1 pages 37-55 * Gateway secondary Biology pages 56-58 * Gold tips biology page 43 |  |
| 2 | 1 | NUTRITION IN ANIMALS | Dental formulae | By the end of the lesson, the learner should be able to:   * Define dental formulae * Describe and write down the dental formulae of herbivore carnivore and omnivore | * Defining the term dental formulae * Discussion on the dental formulae of herbivores, carnivores, omnivores | * Jaws of herbivore and carnivore * Model of human skeleton with teeth on the jaws (artificial teeth) * Chart on various dental formulae | * Comprehensive secondary Biology students Bk. 1 page 75-77 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 73-75 * KLB teachers book 1 pages 37-55 * Gateway secondary Biology pages 56-58 * Gold tips biology page 43-44 |  |
|  | 2 | NUTRITION IN ANIMALS | Dental adaptations of herbivores, carnivores, omnivores | By the end of the lesson, the learner should be able to:   * Write down the definition of herbivores, carnivores and omnivores * Explain the adaptations of dental formulae in various groups of animals, to their mode of feeding | * Discussion on dental adaptation of herbivores and omnivores | * Jaws of herbivore and carnivore * Model of human skeleton with teeth on the jaws (artificial teeth) | * Comprehensive secondary Biology students Bk. 1 page 77 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 73-75 * KLB teachers book 1 pages 37-55 * Gateway secondary Biology pages 56-58 * Gold tips biology page 42-43 |  |
|  | 3-4 | NUTRITION IN ANIMALS | Internal structure of different types of teeth  Functions of the internal structure of a tooth  Common dental diseases | By the end of the lesson, the learner should be able to:   * Draw and label the internal structure of different types of teeth * Write down the functions of the different parts of the internal structure of teeth * Name and discuss common dental diseases | * Drawing of internal structure of different types of teeth * Discussion on the functions of various parts of the teeth * Discussion on common dental diseases | * Jaws of herbivores and carnivores * Model of human skeleton with teeth on the jaws (artificial teeth) * Chart on teeth with some dental diseases | * Comprehensive secondary Biology students Bk. 1 page 77-78 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 75-76 * KLB teachers book 1 pages 37-55 * Gateway secondary Biology pages 56-57 * Gold tips biology page 44 * Longman biology page 46 |  |
| 3 | 1 | NUTRITION IN ANIMALS | Adaptation to the modes of feeding in herbivores | By the end of the lesson, the learner should be able to:   * Write down the adaptations of herbivores to their mode of feeding | * Discussion on adaptation of herbivores to their modes of feeding | * Chart on the jaws of herbivores * Chart on the molars from the jaws of a herbivore * Jaws of a herbivore | * Comprehensive secondary Biology students Bk. 1 page 76 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 73-74 * KLB teachers book 1 pages 37-55 * Gateway secondary Biology pages 55-56 * Gold tips biology page 43 * Longman biology page 45 |  |
|  | 2 | NUTRITION IN ANIMALS | carnivores | By the end of the lesson, the learner should be able to:   * Write down the adaptations of carnivores to their modes of feeding | * Discussion on adaptation of carnivores to their modes of feeding | * Chart on the jaws of a carnivores animal * Chart on the different teeth from the jaws of a carnivore * Jaws of a carnivore | * Comprehensive secondary Biology students Bk. 1 page 77 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 74 * KLB teachers book 1 pages 37-55 * Gateway secondary Biology pages 56 * Gold tips biology page 43 * Longman biology page 45 |  |
|  | 3-4 | NUTRITION IN ANIMALS | Digestive system of a rabbit | By the end of the lesson, the learner should be able to:   * Identify various organs associated with the digestive system of a rabbit | * Dissecting a rabbit assisted by a few students (students to wear gloves) | * Live rabbit * Gloves * Chloroform * Dissection kit * Cotton wool * Dissecting board | * Comprehensive secondary Biology students Bk. 1 page 90-91 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 85-86 * KLB teachers book 1 pages 37-55 * Gateway secondary Biology pages 58-59 * Gold tips biology page * Longman biology page |  |
| 4 | 1 | NUTRITION IN ANIMALS | Human Digestive system | By the end of the lesson, the learner should be able to:   * Draw and label parts of the human digestive system | * Drawing and labeling the human digestive system * Discussion on the parts of the human digestive system | * Chart on the human digestive system | * Comprehensive secondary Biology students Bk. 1 page 79 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 78-82 * KLB teachers book 1 pages 37-55 * Gateway secondary Biology pages * Gold tips biology page * Longman biology page |  |
|  | 2 | CONTINOUS ASSESSMENT TEST | Topic covered so far | By the end of the lesson, the learner should be able to:   * Answer all the questions asked | * Learners to answer all the questions asked * Teacher to supervise the students while they do the test | * Question paper * Marking scheme | * Comprehensive secondary Biology students Bk. 1 page 73-80 * Teachers bk. 1 pages 45-55 * Gateway secondary Biology pages 64-83 |  |
|  | 3-4 | NUTRITION IN ANIMALS | Human Digestive system | By the end of the lesson, the learner should be able to:   * Describe the regions of the alimentary canal of human digestive system * Explain the functions of the human digestive system | * Discussion on various regions of the human alimentary canal * Discussion on some of the human digestive system | * Chart on the human digestive system | * Comprehensive secondary Biology students Bk. 1 page 80-81 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 78-82 * KLB teachers book 1 pages 37-55 * Gateway secondary Biology pages 58-60 * Gold tips biology page 45-47 * Longman biology page |  |
| 5 | 1 | NUTRITION IN ANIMALS | Human Digestive system | By the end of the lesson, the learner should be able to:   * Describe the various regions of the human alimentary canal and their functions | * Discussion on other parts of the human alimentary canal | * Chart on the human digestive system | * Comprehensive secondary Biology students Bk. 1 page 81 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 78-82 * KLB teachers book 1 pages 37-55 * Gateway secondary Biology pages 58-60 * Gold tips biology page 45-47 * Longman biology page |  |
|  | 2 | NUTRITION IN ANIMALS | Adaptation of the Ileum to its functions | By the end of the lesson, the learner should be able to:   * Describe how the ileum is adapted to its function | * Discussion on how the ileum is adapted to its functions * Drawing of the intestinal villi | * Chart on the intestinal villi | * Comprehensive secondary Biology students Bk. 1 page 83 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 83-84 * KLB teachers book 1 pages 37-55 * Gateway secondary Biology pages 61 * Gold tips biology page * Longman biology page |  |
|  | 3-4 | NUTRITION IN ANIMALS | Food content in alimentary canal of a herbivore  Breakdown of starch by diastase enzyme | By the end of the lesson, the learner should be able to:   * Analyze the food content in the alimentary canal of a herbivore * Carry out an experiment on the breakdown of starch by diastase enzymes | * Dissecting a rabbit to obtain food content from the ileum * Carry out analysis on food content of the ileum | * Dead rabbit/rat * Dissecting board and kit * Cotton wool * Benedicts solution * Dilute HCL * Sodium hydrogen carbonate * 1% diastase enzyme * Starch, test tube * Iodine solution * Means of heating * Test tube holder * Dropper * Measuring cylinder * Water bath * White tile * Boiled diastase | * Comprehensive secondary Biology students Bk. 1 page 90-91 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 85-86 * KLB teachers book 1 pages 37-55 * Gateway secondary Biology pages 49-50 * Gold tips biology page 40-42 * Longman KCSE revision 48 * Longman biology page 47- 48 * High flyer series pages 14-15 |  |
| 6 | 1-2 | NUTRITION IN ANIMALS | More adaptation of ileum to its function | By the end of the lesson, the learner should be able to:   * Describe how the ileum is farther adapted to its functions | * Discussion on further adaptation of ileum to its function | * Chart on intestinal villi | * Comprehensive secondary Biology students Bk. 1 page 82 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 81-82 * Gateway secondary Biology pages 61 |  |
|  | 3-4 | NUTRITION IN ANIMALS | Products of digestion  Food assimilation | By the end of the lesson, the learner should be able to:   * Explain the end products of the digestion of various food * Explain the function of the colon * Explain the process of assimilation of food substances | * Discussion on the products of digestion and assimilation of food * Discussion on the functions of colon | * Chart on the products of digestion | * Comprehensive secondary Biology students Bk. 1 page 82 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 84 * Golden tips biology page 49 * KLB teachers book 1 pages 37-55 * Gateway secondary Biology pages 61-62 |  |
| 7 | 1-2 | NUTRITION IN ANIMALS | Chemical digestion in alimentary canal | By the end of the lesson, the learner should be able to:   * Write down the summary of chemical digestion in alimentary canal | * Discussion on chemical digestion In alimentary canal | * Chart showing summary of chemical digestion in alimentary canal | * Comprehensive secondary Biology students Bk. 1 page 82-83 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 80-81 * KLB teachers book 1 pages 37-55 * Golden tips biology page 48 |  |
|  | 3-4 | NUTRITION IN ANIMALS | Importance of vitamins in human nutrition | By the end of the lesson, the learner should be able to:   * Write down the importance of vitamins in human nutrition * Write down the sources of vitamins * State deficiency diseases of various vitamins | * Discussion on the importance of vitamins, their sources and deficiency diseases * Test for vitamin C | * Materials and procedure required | * Comprehensive secondary Biology students Bk. 1 page 83-92 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 85-86 * KLB teachers book 1 pages 37-55 * Gateway secondary Biology pages 61-62 * Golden tips biology page 49 |  |
| 8 | 1-2 | NUTRITION IN ANIMALS | Continuous assessment test | By the end of the lesson, the learner should be able to   * Answer the questions | * Learner to answer the questions asked * Teacher to supervise the students as they do the test | * Question papers * Marking schemes | * Comprehensive secondary Biology students Bk. 1 page 73-86 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 89-92 * KLB teachers book 1 pages 52-55 |  |
|  | 3-4 | NUTRITION IN ANIMALS | Importance of mineral salts in human nutrition, their sources and deficiency diseases | By the end of the lesson, the learner should be able to:   * Write down the importance of mineral salts in human nutrition * State the source of mineral salts * State the deficiency diseases of mineral salts | * Discussion on importance of mineral salts in humans, their sources and deficiency diseases | * Chart showing mineral salts, their sources and deficiency diseases | * Comprehensive secondary Biology students Bk. 1 page 84 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 86-87 * KLB teachers book 1 pages 37-55 * Gateway secondary Biology pages 63 |  |
| 9 | 1-2 | NUTRITION IN ANIMALS | Role of water and roughage in nutrition | By the end of the lesson, the learner should be able to:   * Write down the role of roughage in nutrition * Write down the role of water in nutrition | * Discussion on the role of water and roughage in nutrition | * Sample of sources of roughage | * Comprehensive secondary Biology students Bk. 1 page 86-87 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 84 * KLB teachers book 1 pages 37-55 * Gateway secondary Biology pages 61 |  |
|  | 3-4 | NUTRITION IN ANIMALS | Factors determining energy requirements in humans | By the end of the lesson, the learner should be able to   * Discuss factors which determine energy requirements in human beings | * Discussion on the factors determining energy requirements in human beings | * Chart showing factors that determine energy requirements in human beings | * Comprehensive secondary Biology students Bk. 1 page 87-88 * Teachers bk. 1 pages 45-55 * KLB secondary Biology * Students book Page 88-89 * KLB teachers book 1 pages 37-55 |  |
| 10 | 1-4 | NUTRITION IN ANIMALS | Factors determining energy requirements in human beings (group activity) | By the end of the lesson, the learner should be able to   * Participate in group discussions and present findings on factors that determine energy requirements in human beings | * Group discussions coordinated by the teacher * Group presentations by preventatives members | * Research material obtained by students | * Comprehensive secondary Biology students Bk. 1 page 87-88 * Teachers bk. 1 pages 48-55 * KLB secondary Biology * Students book Page 88-89 * KLB teachers book 1 pages 37-55 Gateway secondary Biology pages 63-64 |  |
| **12** |  | **REVISION & END YEAR EXAMINATIONS** | | | | | | |

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| **BIOLOGY FORM 2 SCHEMES OF WORK – TERM 1** | | | | | | | | |
| **WEEK** | **LESSON** | **TOPIC** | **SUB - TOPIC** | **OBJECTIVES** | **LEARNING/TEACHING ACTIVITIES** | **LEARNING/TEACHING RESOURCES** | **REFERENCES** | **REMARKS** |
| 1 | 1-2 | TRANSPORT IN PLAN TS | Introduction | By the end of the lesson, the learner should be able to:   * Define the term transport * List substances transported in plants and animals * Link surface area to volume ratio of organisms to the transport system of the organism * Explain the necessity of transport in plants | * Defining the term transport * Listing substances transported in organisms * Relating surface area to volume ratio of organisms to transport systems | * Large and small cubes * Surface area * Surface area to volume ration of different cubes | * Comprehensive secondary Biology students Bk. 2 page 1-2 * Teachers bk. 2 pages 1-13 * KLB secondary Biology * Students book 2 Page 1 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 1 * Golden tips biology pages 54-58 * Gateway secondary Biology pages 84 * Longman biology page 52 |  |
|  | 3 | TRANSPORT IN PLANTS | Structure of roots and root hairs | By the end of the lesson, the learner should be able to:   * Draw the structure of roots and root hairs * Relate the structure of the root to their functions | * Discussing the structure of root and root hairs * Drawing the root and root hair * Relating the structure to functions | * Chart of root and root hair | * Comprehensive secondary Biology students Bk. 2 page 2-4 * Teachers bk. 2 pages 1-13 * KLB secondary Biology * Students book 2 Page 2 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 1 * Golden tips biology pages 55-56 * Gateway secondary Biology pages 84 * Longman biology page |  |
|  | 4 | TRANSPORT IN PLANTS | Structure of roots and root hairs (practical lesson) | By the end of the lesson, the learner should be able to:   * Observe prepared slides of roots and root hairs * Compare monocotyledons and dicotyledonous root sections * Observe charts and drawings of root sections | * Observing and comparing prepared slides of monocotyledonous and dicotyledonous roots and root hairs under a light microscope * Observing charts and drawings of root section | * Microscopes prepared slides of root sections and root hairs * Charts on root sections of monocotyledonous and dicotyledonous roots | * Comprehensive secondary Biology students Bk. 2 page 2-4 * Teachers bk. 2 pages 1-13 * KLB secondary Biology * Students book 2 Page 1-2 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 2-5 * Golden tips biology pages 56 * Gateway secondary Biology pages 84 * Longman biology page |  |
| 2 | 1 | TRANSPORT IN PLANTS | Xylem Vessels | By the end of the lesson, the learner should be able to:   * Draw and label the structure of the Xylem Vessel * Define Xylem Vessel * Relate the structure of the Xylem Vessel to its function | * Defining the term Xylem Vessel * Drawing and labeling the structure of the Xylem Vessel * Relating the structure of the Xylem Vessel to its function | * Photographs of Xylem Vessels * Chart on Xylem Vessels | * Comprehensive secondary Biology students Bk. 2 page 8-9 * Teachers bk. 2 pages 1-13 * KLB secondary Biology * Students book 2 Page 2-10 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 17-20 * Golden tips biology pages 58 * Gateway secondary Biology pages 84-85 * Longman biology page |  |
|  | 2 | TRANSPORT IN PLANTS | Tracheid elements | By the end of the lesson, the learner should be able to:   * Define Tracheid elements * Relate the structure of the Tracheid elements to their functions * Distinguish between xylem vessels and Tracheid elements | * Defining Tracheid elements * Distinguishing between vessels and tracheids * Discussion on the structure of Tracheid elements * Relating the structure of the Tracheid elements to their functions | * Photographs of Tracheid elements * Chart on Tracheid elements | * Comprehensive secondary Biology students Bk. 2 page 8-9 * Teachers bk. 2 pages 1-13 * KLB secondary Biology * Students book 2 Page 10-11 * KLB teachers book 2 pages 5-34 * Longhorn secondary biology: students book 2 page 19-20 * Golden tips biology pages 58 * Gateway secondary Biology pages 84-85 * Longman biology page 53-54 |  |
|  | 3 | TRANSPORT IN PLANTS | Absorption water and mineral salts | By the end of the lesson, the learner should be able to:   * Describe water and salt uptake by roots from the soil * Explain the physiological process involved in the uptake of water and mineral salts | * Explaining water absorption and mineral salt uptake by roots in plants * Discussion of water absorption and uptake of mineral salts in plants | * Photographs of monocotyledonous and dicotyledonous stem sections showing the xylem * Chart on the stem sections * Chart on roots, roots hairs and section of roots * Photographs of roots and root hairs | * Comprehensive secondary Biology students Bk. 2 page 2-5 * Teachers bk. 2 pages 1-13 * KLB secondary Biology * Students book 2 Page 7-9 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 2-8 * Golden tips biology pages 54-56 * Gateway secondary Biology pages 84-85 * Longman biology page 54 |  |
| 3 | 1 | TRANSPORT IN PLANTS | Internal tissues of the stem | By the end of the lesson, the learner should be able to:   * Draw the monocotyledonous and dicotyledonous stem sections * Define the term transpiration and relate the structure of xylem to its role in transpiration | * Defining transpiration * Discussion on the structure of the xylem to its function * Drawing the stem section | * Photographs of monocotyledonous and dicotyledonous stem sections showing the xylem * Chart on the stem sections | * Comprehensive secondary Biology students Bk. 2 page 6-7 * Teachers bk. 2 pages 1-13 * KLB secondary Biology * Students book 2 Page 5-7 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 4-10 * Golden tips biology pages 59 * Gateway secondary Biology pages 86-87 * Longman biology page |  |
|  | 2 | TRANSPORT IN PLANTS | The role of the leaf in transpiration | By the end of the lesson, the learner should be able to:   * Draw and label the internal and the external structure of a leaf * Describe the functions of the leaf * Relate the parts of a leaf to their functions | * Drawing and labeling the structure of a leaf * Discussion on the parts of a leaf and how they relate to their functions | * Sample leaves of various pants * Charts on the section of a leaf | * Comprehensive secondary Biology students Bk. 2 page 7 * Teachers bk. 2 pages 1-13 * KLB secondary Biology * Students book 2 Page 9-10 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 10-12 * Golden tips biology pages 57-58 * Gateway secondary Biology pages 84 * Longman biology page 54 |  |
|  | 3-4 | TRANSPORT IN PLANTS | Transport of water and mineral salts in plants (practical lesson) | By the end of the lesson, the learner should be able to:   * Demonstrate the movement of water in plants * Observe prepared leaf sections to identify vascular tissues | * Carrying out an experiment to demonstrate the movement of water in plants * Observing prepared leaf section under a light microscope * Identifying vascular tissues in leaves | * Sample leaves of various pants * Charts on the section of a leaf sections * microscopes | * Comprehensive secondary Biology students Bk. 2 page 14 * Teachers bk. 2 pages 1-13 * KLB secondary Biology * Students book 2 Page 14-16 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 7 |  |
| 4 | 1 | TRANSPORT IN PLANTS | Movement of water in plants | By the end of the lesson, the learner should be able to:   * Discuss the forces involved in movement of water in plants such as transpiration, pull, cohesion and adhesion capillarity and root pressures * Demonstrate the forces involved in movement of water in plants | * Describing the forces involved in movement of water in plants * Discussion on forces involved in movement of water in plants * Carrying out experiments to show the forces involved | * Tubes of different diameters * Beakers containing colored water * Fresh plant stump with fluid oozing | * Comprehensive secondary Biology students Bk. 2 page 11-12 * Teachers bk. 2 pages 1-13 * KLB secondary Biology * Students book 2 Page 11-12 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 5-6 * Golden tips biology pages 59-60 * Gateway secondary Biology pages 86-87 * Longman biology page |  |
|  | 2 | TRANSPORT IN PLANTS | Importance of transpiration | By the end of the lesson, the learner should be able to:   * Identify the importance of transpiration in plants * Discuss the importance of transpiration in plants | * Discussion on the significance of transpiration in plants | * Wilted potted plants * Potted plants growing normally | * Comprehensive secondary Biology students Bk. 2 page 12 * Teachers bk. 2 pages 1-13 * KLB secondary Biology * Students book 2 Page 12 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 12 * Golden tips biology pages 54 * Gateway secondary Biology pages 84 * Longman biology page |  |
|  | 3-4 | TRANSPORT IN PLANTS | The phloem | By the end of the lesson, the learner should be able to:   * Explain what the phloem is * Draw the structure of the phloem and relate its structure to its function * List down materials translocated in the phloem | * Drawing the structure of the phloem * Discussing the functions of phloem in relation to its structure * Listing down the materials translocated in plants | * Chart on structure of the phloem * Photographs of the phloem | * Comprehensive secondary Biology students Bk. 2 page 12-14 * Teachers bk. 2 pages 1-13 * KLB secondary Biology * Students book 2 Page 1-13 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 24-26 * Golden tips biology pages 61-62 * Gateway secondary Biology pages 86 * Longman biology page |  |
| 6 | 1 | TRANSPORT IN PLANTS | The phloem | By the end of the lesson, the learner should be able to:   * Draw the structure of the phloem * Relate the parts of the phloem to its functions | * Drawing the phloem * Discussion on the functions of the parts of the phloem | * Chart of the phloem structure * Drawings of the phloem structure | * Comprehensive secondary Biology students Bk. 2 page 12 * Teachers bk. 2 pages 1-13 * KLB secondary Biology * Students book 2 Page 17-18 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 24-25 * Golden tips biology pages 62 * Gateway secondary Biology pages 86-87 * Longman biology page 55 |  |
|  | 2 | TRANSPORT IN PLAN TS | Function of phloem | By the end of the lesson, the learner should be able to:   * Discuss the function of the phloem * List down materials translocated and the sites of storage in the phloem | * Discussion on the functions of the phloem * Listing down materials translocated and storage sites in the phloem | * Chart of the phloem structure * Photographs of the phloem | * Comprehensive secondary Biology students Bk. 2 page 12-14 * Teachers bk. 2 pages 1-13 * KLB secondary Biology * Students book 2 Page 17-18 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 24-26 * Golden tips biology pages 61-62 * Gateway secondary Biology pages 86-87 * Longman biology page 55 |  |
|  | 3-4 | TRANSPORT IN PLAN TS | Function of phloem (practical lesson) | By the end of the lesson, the learner should be able to:   * Set up an experiment to investigate translocation of food substances in dicotyledonous plants * Set up an experiment to investigate translocation of food substances in a monocotyledonous plant * Explain the processes involved in the translocation of food in plants | * Setting up an experiment to investigate translocation * Explaining the processes involved in the translocation of food in plants * Discussion on the result of the experiment | * A young plant * Sharp knife * Saplings | * Comprehensive secondary Biology students Bk. 2 page 14 * Teachers bk. 2 pages 1-13 * KLB secondary Biology * Students book 2 Page 12-14 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 25-26 * Golden tips biology pages 62 * Gateway secondary Biology pages 86-87 * Longman biology page |  |
| 7 | 1-2 | TRANSPORT IN ANIMALS | Introduction  Transport in unicellular animals | By the end of the lesson, the learner should be able to:   * Identify unicellular organisms such as amoeba * Describe transport of substances in unicellular organisms * Explain the necessity of an elaborate transport system in most animals | * Identify some unicellular organisms such as amoeba * Explaining transport in unicellular organisms * Explaining the need for an elaborate transport system in most animals | * Chart showing movement of gasses in and out of an amoeba by diffusion | * Comprehensive secondary Biology students Bk. 2 page 21 * Teachers bk. 2 pages 1-13 * KLB secondary Biology * Students book 2 Page 18 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 26 * Golden tips biology pages 63 * Gateway secondary Biology pages 88 * Longman biology page 55-56 |  |
|  | 3-4 | TRANSPORT IN ANIMALS | Open circulatory system | By the end of the lesson, the learner should be able to:   * Define an open circulatory system * Discuss the open circulatory system * Draw the open circulatory system of an insect | * Explaining open circulatory system in insects * Discussing the open circulatory system * Drawing the open circulatory system of an insect * Labeling the open circulatory system | * Chart showing the circulatory system of a cockroach | * Comprehensive secondary Biology students Bk. 2 page 21 * Teachers bk. 2 pages 14-25 * KLB secondary Biology * Students book 2 Page 18-20 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 26-27 * Golden tips biology pages 63-64 * Gateway secondary Biology pages 88 * Longman biology page |  |
| 8 | 1 | TRANSPORT IN ANIMALS | Closed circulatory system | By the end of the lesson, the learner should be able to:   * Define an closed transport system * Identify animals with the open circulatory system * Distinguish between closed and open circulatory systems | * Defining closed circulatory systems * Stating organisms with closed circulatory systems such as human beings * Distinguishing between closed and open circulatory systems | * Chart showing closed circulatory system * Chart showing the difference between closed circulatory system and open circulatory system | * Comprehensive secondary Biology students Bk. 2 page 22-23 * Teachers bk. 2 pages 14-25 * KLB secondary Biology * Students book 2 Page 19-20 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 26-27 * Golden tips biology pages 64-65 * Gateway secondary Biology pages 88-89 * Longman biology page 55-56 |  |
|  | 2-3 | TRANSPORT IN ANIMALS | Double circulatory system | By the end of the lesson, the learner should be able to:   * Define an Double circulatory system * Draw and label circulatory systems in mammals * Dissect a rabbit and observe its transport system | * Discussing the Double circulatory system * Observing the transport system in a rabbit * Drawing the double circulatory system of a mammal | * Chart showing the circulatory system of a mammal * Dissected rabbit displaying the circulatory system | * Comprehensive secondary Biology students Bk. 2 page 24-42-44 * Teachers bk. 2 pages 14-25 * KLB secondary Biology * Students book 2 Page 19-20 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 28-34 * Golden tips biology pages 64-65 * Gateway secondary Biology pages 88-89 * Longman biology page 56 * High flyer series pages 30-32 |  |
|  | 4 | CONTINOUS ASSESMENT TEST | Topics covered so far | By the end of the lesson, the learner should be able to answer the given questions in the test | * Learner to answer questions * Teacher to supervise the test | * Question paper * Marking scheme |  |  |
| 9 | 1 | TRANSPORT IN ANIMALS | The mammalian heart | By the end of the lesson, the learner should be able to:   * Draw and label the external parts of the mammalian heart * Draw and label the internal structure of the mammalian heart * Explain the functions of the heart * Relate the structure of the heart to its functions | * Drawing and labeling the mammalian heart and relating its structure to its functions * Discussing the structure of the mammalian heart | * Chart showing the structure of a mammalian heart * Model of a heart | * Comprehensive secondary Biology students Bk. 2 page 24-25 * Teachers bk. 2 pages 14-25 * KLB secondary Biology * Students book 2 Page 21-23 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 28-32 * Golden tips biology pages 65-66 * Gateway secondary Biology pages 89 * Longman biology page * High flyer series pages |  |
|  | 2 | TRANSPORT IN ANIMALS | Blood flow in the circulatory system of mammals | By the end of the lesson, the learner should be able to:   * Trace the path taken by blood from the heart to the body parts and back to the heart * State the substances supported by the blood of mammals * Describe the flow of oxygenated blood in and out of the body through the heart | * Discussing the blood flow in mammals * Tracing the path taken by blood from the heart to all body parts and back to the heart | * Chart showing the path of blood flow in the circulatory system of a mammal | * Comprehensive secondary Biology students Bk. 2 page 25-26 * Teachers bk. 2 pages 14-25 * KLB secondary Biology * Students book 2 Page 19-20 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 31-32 * Golden tips biology pages 65-67 * Gateway secondary Biology pages 88-90 * Longman biology page 56 * High flyer series pages |  |
|  | 3-4 | TRANSPORT IN ANIMALS | Blood vessels | By the end of the lesson, the learner should be able to:   * Explain the structure of arteries, veins and capillaries * Relate the structure of the arteries, veins and capillaries to their function | * Explaining and relating the structure to their functions * Drawing the arteries, veins and capillaries * Making medals of blood vessels | * Chart showing arteries, veins, and capillaries * Modes of blood vessels * Different colours of Plasticine | * Comprehensive secondary Biology students Bk. 2 page 29-31 * Teachers bk. 2 pages 14-25 * KLB secondary Biology * Students book 2 Page 25-30 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 33-43 * Golden tips biology pages 67-68 * Gateway secondary Biology pages 88-90 * Longman biology page 56 * High flyer series pages |  |
| 10 | 1 | TRANSPORT IN ANIMALS | Diseases and defects of the circulatory system | By the end of the lesson, the learner should be able to:   * Name the common diseases of circulatory system such as thrombosis, varicose veins * Suggest methods of control/prevention for the diseases. | * Name the diseases of the circulatory system * Suggest methods of control/prevention | * Resource person such as the school nurse * Photographs of people suffering from diseases of the circulatory system | * Comprehensive secondary Biology students Bk. 2 page 32-33 * Teachers bk. 2 pages 14-15 * KLB secondary Biology * Students book 2 Page 31-32 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 43-45 * Golden tips biology pages 73-74 * Gateway secondary Biology pages 92-93 * Longman biology page 57 * High flyer series pages |  |
|  | 2 | TRANSPORT IN ANIMALS | The structure and function of the blood | By the end of the lesson, the learner should be able to:   * List the components of the blood * State the functions of each of the blood components | * Listing components of blood * Relating blood components to their functions * Modeling red blood cells (RBC) | * Resource person such as the school nurse * Model RBCs using Plasticine | * Comprehensive secondary Biology students Bk. 2 page 33-37 * Teachers bk. 2 pages 14-25 * KLB secondary Biology * Students book 2 Page 32-35 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 45-50 * Golden tips biology pages 69-71 * Gateway secondary Biology pages 90 * Longman biology page 58-59 * High flyer series pages |  |
|  | 3-4 | TRANSPORT IN ANIMALS | The structure and function of the blood | By the end of the lesson, the learner should be able to:   * Explain how oxygen and carbon dioxide are transported in the blood * Describe the mechanisms of blood clotting and its importance | * Explaining how oxygen and carbon dioxide are transported in the blood * Describing the mechanisms of blood clotting and its importance | * Resource person such as the school nurse * Chart showing blood clotting mechanism | * Comprehensive secondary Biology students Bk. 2 page 34-35 * Teachers bk. 2 pages 14-25 * KLB secondary Biology * Students book 2 Page 36-38 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 45-51 * Golden tips biology pages 70-71 * Gateway secondary Biology pages 90 * Longman biology page * High flyer series pages |  |
| 11 | 1 | TRANSPORT IN ANIMALS | Blood grouping and blood transfusion | By the end of the lesson, the learner should be able to:   * Describe the human blood group system * State the importance of blood groups in blood transfusion | * Describing blood groups * Stating the importance of human blood groups in blood transfusion * Playing cards/bottle tops in pairs | * Resource person such as the school nurse * Chart showing blood groups and possible transfusions * Prepared cards/bottle tops | * Comprehensive secondary Biology students Bk. 2 page 37-38 * Teachers bk. 2 pages 14-25 * KLB secondary Biology * Students book 2 Page 36-38 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 51-54 * Golden tips biology pages 72-73 * Gateway secondary Biology pages 90-91 * Longman biology page 56 * High flyer series pages |  |
|  | 2 | TRANSPORT IN ANIMALS | Blood grouping and blood transfusion | By the end of the lesson, the learner should be able to:   * Discuss the rhesus factor * State the role of the rhesus factor in blood transfusion | * Discussing the rhesus factor and its role in blood transfusion | * Resource person such as the school nurse * Blood transfusion personnel | * Comprehensive secondary Biology students Bk. 2 page 38-39 * Teachers bk. 2 pages 14-25 * KLB secondary Biology * Students book 2 Page 37-39 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 52-55 * Golden tips biology pages 72-73 * Gateway secondary Biology pages 92 * Longman biology page 59 * High flyer series pages |  |
|  | 3-4 | TRANSPORT IN ANIMALS | The structure of the heart (practical lesson) | By the end of the lesson, the learner should be able to:   * Examine the external and internal structure of a cows heart * Investigate pulse rate at the wrist | * Examining a mammalian heart structure and identifying various parts * Working in pairs to examine pulse rate before and after vigorous activities | * Fresh heart of a mammal such as a cow * Dissecting kit * Hand lens * Stop watch | * Comprehensive secondary Biology students Bk. 2 page 44-45 * Teachers bk. 2 pages 14-25 * KLB secondary Biology * Students book 2 Page 30-31 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 28 * Golden tips biology pages 66 * Gateway secondary Biology pages 89 * Longman biology page 59 * High flyer series pages |  |
| 12 | 1 | TRANSPORT IN ANIMALS | Immune responses | By the end of the lesson, the learner should be able to:   * Defining immunity * Describe immune response * Differentiate between natural and artificial immunity | * Defining immunity * Describing immune responses * Distinguishing between natural and artificial immunity | * Chart showing types of immunity | * Comprehensive secondary Biology students Bk. 2 page 39-41 * Teachers bk. 2 pages 14-25 * KLB secondary Biology * Students book 2 Page 40-41 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 56-58 * Golden tips biology pages 74-75 * Gateway secondary Biology pages 93 * Longman biology page * High flyer series pages |  |
|  | 2 | TRANSPORT IN ANIMALS | vaccination | By the end of the lesson, the learner should be able to:   * Define vaccination * Describe importance of vaccination against diseases such as tuberculosis, poliomyelitis, measles, diphtheria, whooping cough | * Defining vaccination * Describing the importance of vaccination * Drawing the vaccination table | * Chart showing the vaccination table | * Comprehensive secondary Biology students Bk. 2 page 40-41 * Teachers bk. 2 pages 14-25 * KLB secondary Biology * Students book 2 Page 41-43 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 58-59 * Golden tips biology pages 75-76 * Gateway secondary Biology pages 93-94 * Longman biology page * High flyer series pages |  |
|  | 3-4 | TRANSPORT IN ANIMALS | Allergic reactions | By the end of the lesson, the learner should be able to:   * Define allergic reactions and explain their causes * Carry out an experiment to demonstrate the unidirectional flow of blood in the cutaneous veins of the forearm | * Defining allergic reactions and explaining their causes * Carrying out an experiment to demonstrate the unidirectional flow of blood in the cutaneous veins | * School nurse * Rubber bands * Bandages or handkerchiefs | * Comprehensive secondary Biology students Bk. 2 page 41-42-45 * Teachers bk. 2 pages 14-25 * KLB secondary Biology * Students book 2 Page 43 * KLB teachers book 2 pages 15-34 * Longhorn secondary biology: students book 2 page 58 * Golden tips biology pages 76-77 * Gateway secondary Biology pages 93-94 * Longman biology page59-60 * High flyer series pages |  |
| **13** | **REVISION AND END OF TERM EXAMINATIONS** | | | | | | | |

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| **BIOLOGY FORM 2 SCHEMES OF WORK – TERM 2** | | | | | | | | |
| **WEEK** | **LESSON** | **TOPIC** | **SUB - TOPIC** | **OBJECTIVES** | **LEARNING/TEACHING ACTIVITIES** | **LEARNING/TEACHING RESOURCES** | **REFERENCES** | **REMARKS** |
| 1 | 1 | GASEOUS EXCHANGE IN PLANTS | Definition and importance of gaseous exchange | By the end of the lesson, the learner should be able to:   * Define gaseous exchange * Identify the gases that are exchanged in the living organism * Explain the importance of gaseous exchange in organisms | * Defining gaseous exchange * state the gases that are exchanged in the living organisms such as oxygen and carbon dioxide * discussion on the importance of gaseous exchange in organisms | * charts on the importance of gaseous exchange in organisms | * Comprehensive secondary Biology students Bk. 2 page 48 * Teachers bk. 2 pages 26-33 * KLB secondary Biology * Students book 2 Page 48-50 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 70 * Golden tips biology pages 79 * Gateway secondary Biology pages 113 * Longman biology page 62 * High flyer series pages 36 |  |
|  | 2 | GASEOUS EXCHANGE IN PLANTS | Gaseous exchange in the stomata | By the end of the lesson, the learner should be able to:   * Describe the stomata * Draw and label open and closed stomata * Explain stomata and gaseous exchange | * Describing the parts of the stomata * Drawing and labeling of open and closed stoma * Discussion on stomatal gaseous exchange | * Chart showing open and closed stomata | * Comprehensive secondary Biology students Bk. 2 page 48-49 * Teachers bk. 2 pages * KLB secondary Biology * Students book 2 Page 48-51 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 70-74 * Golden tips biology pages 79-80 * Gateway secondary Biology pages 114 * Longman biology page 62 * High flyer series pages |  |
|  | 3-4 | GASEOUS EXCHANGE IN PLANTS | Stomata (practical lesson) | By the end of the lesson, the learner should be able to:   * Investigate the presence of stomata on leaves * Investigate the shape of guard cells and the distribution of stomata on leaves | * Investigating the presence of stomata on leaves in groups * Investigating the shape of guard cells * Discussion on the distribution of stomata on leaves of various plants | * Water in a beaker * Leaves of various leaves * Means of heating * Clear nail varnish * Light microscope * Cover slip * Forceps * Microscope slide * Leaves of various plants | * Comprehensive secondary Biology students Bk. 2 page 54 * Teachers bk. 2 pages 26-33 * KLB secondary Biology * Students book 2 Page 48-50 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 76 * Golden tips biology pages * Gateway secondary Biology pages 114 * Longman biology page * High flyer series pages |  |
| 2 | 1 | GASEOUS EXCHANGE IN PLANTS | Mechanism of opening and closing stomata | By the end of the lesson, the learner should be able to:   * Explain the mechanism of opening and closing of stomata * Describe photosynthetic/glucose accumulation theory of opening and closing stomata | * Explaining the mechanism of opening and closing of stomata * Discussion on the photosynthetic/glucose accumulation theory of opening and closing stomata | * Chart showing open and closed stomata | * Comprehensive secondary Biology students Bk. 2 page 49-50 * Teachers bk. 2 pages 26-33 * KLB secondary Biology * Students book 2 Page 50-51 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 71-74 * Golden tips biology pages 79-80 * Gateway secondary Biology pages 114 * Longman biology page 62 * High flyer series pages |  |
|  | 2 | GASEOUS EXCHANGE IN PLANTS | Mechanism of opening and closing stomata | By the end of the lesson, the learner should be able to:   * Describe inter-conversion of starch and glucose and ion accumulation theories | * Discussion on the inter-conversion of starch and glucose and ion accumulation theories | * Chart showing open and closed stomata | * Comprehensive secondary Biology students Bk. 2 page 50 * Teachers bk. 2 pages 26-33 * KLB secondary Biology * Students book 2 Page 50-51 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 76 * Golden tips biology pages 79-80 * Gateway secondary Biology pages 114 * Longman biology page * High flyer series pages |  |
|  | 3-4 | GASEOUS EXCHANGE IN PLANTS | Internal structure of stems and leaves (practical lessons) | By the end of the lesson, the learner should be able to:   * Investigate the internal structure of stems and leaf stalk in aerial and aquatic plants * Investigate tissue distribution in aerial leaves and stems | * Investigation of the structure of stems and leaf stalks in aerial and aquatic plants | * Microscope * Prepared permanent slides of aerial leaves and stems * Water lily leaf stalk * Bougainvillea twig * Beaker containing water * scalpel | * Comprehensive secondary Biology students Bk. 2 page 55 * Teachers bk. 2 pages 26-33 * KLB secondary Biology * Students book 2 Page 50-52 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 75-76 * Golden tips biology pages * Gateway secondary Biology pages * Longman biology page 62 * High flyer series pages |  |
| 3 | 1 | GASEOUS EXCHANGE IN PLANTS | Cuticular and lenticular gaseous exchange | By the end of the lesson, the learner should be able to describe Cuticular and lenticular gaseous exchange | * Discussion on lenticular gaseous exchange * Discussion on Cuticular gaseous exchange | * Chart showing internal leaf structure and lenticels | * Comprehensive secondary Biology students Bk. 2 page 52 * Teachers bk. 2 pages 26-33 * KLB secondary Biology * Students book 2 Page 51-53 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 75 * Golden tips biology pages 81 * Gateway secondary Biology pages 114-115 * Longman biology page 62-64 * High flyer series pages 36-37 |  |
|  | 2 | GASEOUS EXCHANGE IN PLANTS | gaseous exchange through the roots | By the end of the lesson, the learner should be able to;   * Draw the structure of the root * Describe how gaseous exchange takes place through the epidermis of the roots | * Drawing the structure of the root * Discussion on gaseous exchange through the roots | * Photograph of pneumatophic * Chart showing breathing roots | * Comprehensive secondary Biology students Bk. 2 page 52-54 * Teachers bk. 2 pages 26-33 * KLB secondary Biology * Students book 2 Page 48-52 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 74-75 * Golden tips biology pages 81-82 * Gateway secondary Biology pages 113-114 * Longman biology page * High flyer series pages |  |
|  | 3-4 | GASEOUS EXCHANGE IN PLANTS | gaseous exchange structures | By the end of the lesson, the learner should be able to;   * Examine various types of gaseous exchange structure in different organisms * Relate the various types of gaseous exchange structure to their functions in different organisms | * Examining various types of gaseous exchange structures * Relating the various types of gaseous exchange structure to their functions in different organisms | * Tadpoles * Insects (alive) * Fish * Frog * earthworm | * Comprehensive secondary Biology students Bk. 2 page 57 * Teachers bk. 2 pages 34-48 * KLB secondary Biology * Students book 2 Page 58-61 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 80-81 * Golden tips biology pages 82 * Gateway secondary Biology pages 115 * Longman biology page * High flyer series pages |  |
| 4 | 1 | GASEOUS EXCHANGE IN ANIMALS | Gaseous exchange types and characteristics of respiratory surfaces in animals | By the end of the lesson, the learner should be able to;   * State the characteristics of gaseous exchange surfaces in different organisms | * Discussion on characteristics of gaseous exchange surfaces * Discussion on mechanism of gaseous exchange surfaces * Discussion on mechanism of gaseous exchange in amoeba | * Chart showing diagrams of different gaseous exchange surfaces such as insects fish, frogs and earth worms * Chart showing diagram on gaseous exchange in amoeba | * Comprehensive secondary Biology students Bk. 2 page 57-58 * Teachers bk. 2 pages 34-48 * KLB secondary Biology * Students book 2 Page 53 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 80 * Golden tips biology pages 82-83 * Gateway secondary Biology pages 115 * Longman biology page 65 * High flyer series pages |  |
|  | 2-3 | GASEOUS EXCHANGE IN ANIMALS | gaseous exchange in an insect | By the end of the lesson, the learner should be able to;   * Examine the gaseous exchange structures of a grasshopper or a locust * Draw the gaseous exchange structure of an insect | * Examining the gaseous exchange structures in insects * Drawing the gaseous exchange structure of an insect | * Chart on tracheal system in insects * Live grasshoppers * Dissecting board * Pins * Hand lens * Dissecting kit * Chloroform * Cotton wool | * Comprehensive secondary Biology students Bk. 2 page 58 * Teachers bk. 2 pages 34-48 * KLB secondary Biology * Students book 2 Page 54-56 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 81-84 * Golden tips biology pages 83 * Gateway secondary Biology pages 115-116 * Longman biology page 64 * High flyer series pages 37-38 |  |
|  | 4 | GASEOUS EXCHANGE IN ANIMALS & PLANTS | Continuous assessment test | By the end of the lesson, the learner should be able to answer all questions asked in the test | * Learner to write down the answers * Teacher to supervise test | * Question papers * Marking scheme |  |  |
| 5 | 1 | GASEOUS EXCHANGE IN ANIMALS | gaseous exchange in bony fish | By the end of the lesson, the learner should be able to;   * Draw and label the structure of gaseous exchange in bony fish * Relate the gills to their function | * discussion on gills of a bony fish * drawing and labeling the gill chamber and gills of bony fish * discussion on functions of parts of the gills | * Chart showing diagram of gill chamber of bony fish | * Comprehensive secondary Biology students Bk. 2 page 59-60 * Teachers bk. 2 pages 34-48 * KLB secondary Biology * Students book 2 Page 56-58 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 84-88 * Golden tips biology pages 84 * Gateway secondary Biology pages 116-117 * Longman biology page * High flyer series pages |  |
|  | 2 | GASEOUS EXCHANGE IN ANIMALS | Gaseous exchange in bony fish | By the end of the lesson, the learner should be able to describe the mechanism of gaseous exchange in bony fish | * Discussion on the mechanism of gaseous exchange in bony fish | * Chart showing diagram of gill chamber of bony fish | * Comprehensive secondary Biology students Bk. 2 page 60-61 * Teachers bk. 2 pages 34-48 * KLB secondary Biology * Students book 2 Page 57-58 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 84 * Golden tips biology pages 84 * Gateway secondary Biology pages 116-117 * Longman biology page * High flyer series pages 38 |  |
|  | 3-4 | GASEOUS EXCHANGE IN ANIMALS | Gaseous exchange in bony fish (practical lesson) | By the end of the lesson, the learner should be able to:   * Examine the location and number of gills in gill chambers of bony fish * Examine, draw and label the gill of a bony fish | * Examining the location and number of gills in gill chambers of bony fish * Examining, drawing and labeling isolated gills in bony fish | * Tilapia fish * Hand lens * Gills of a bony fish * Dissecting kit * Pins * Dissecting board | * Comprehensive secondary Biology students Bk. 2 page 69 * Teachers bk. 2 pages 34-48 * KLB secondary Biology * Students book 2 Page 58 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 84-85 * Golden tips biology pages 84 * Gateway secondary Biology pages 116 * Longman biology page * High flyer series pages |  |
| 6 | 1 | GASEOUS EXCHANGE IN ANIMALS | gaseous exchange in frogs | By the end of the lesson, the learner should be able to describe the gaseous exchange I a frog through its gills, skin, mouth and lungs. | * Discussion on gaseous exchange in a frog | * Chart showing position of mouth cavity, lungs and nostrils in a frog | * Comprehensive secondary Biology students Bk. 2 page 61-62 * Teachers bk. 2 pages 34-48 * KLB secondary Biology * Students book 2 Page 58-59 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 88-90 * Golden tips biology pages 84-85 * Gateway secondary Biology pages 117 * Longman biology page 65-66 * High flyer series pages |  |
|  | 2 | GASEOUS EXCHANGE IN ANIMALS | gaseous exchange in human beings | By the end of the lesson, the learner should be able to:   * State the structure involved in gaseous exchange in human beings * Explain the features of the structures involved in gaseous exchange in human beings * Draw and label the structures involved in gaseous exchange in human beings | * Stating the structures involved in gaseous exchange in human beings * Explaining the features of the structures involved in gaseous exchange in human beings * Drawing and labeling the structures involved in gaseous exchange in humans | * Chart showing the lungs and rib cage in human beings | * Comprehensive secondary Biology students Bk. 2 page 63-65 * Teachers bk. 2 pages 34-48 * KLB secondary Biology * Students book 2 Page 59-64 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 90-94 * Golden tips biology pages 85-86 * Gateway secondary Biology pages 117-118 * Longman biology page 66 * High flyer series pages 38-39 |  |
| 6 | 3-4 | GASEOUS EXCHANGE IN ANIMALS | gaseous exchange in human beings | By the end of the lesson, the learner should be able to:   * Examine a dissected mammal to locate the gaseous exchange structures * Describe the mechanism of breathing in human beings | * Identifying the structures of gaseous exchange in a dissected rabbit (mammal) * Discussion on mechanism of breathing in human beings | * Chart showing the lungs and rib cage in human beings * Dissected rabbit displaying the gaseous exchange system | * Comprehensive secondary Biology students Bk. 2 page 64 * Teachers bk. 2 pages 34-48 * KLB secondary Biology * Students book 2 Page 59-64 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 94-97 * Golden tips biology pages 86 * Gateway secondary Biology pages 119 * Longman biology page * High flyer series pages 38-39 |  |
| 7 | 1-2 | GASEOUS EXCHANGE IN ANIMALS | Breathing mechanisms in human beings | By the end of the lesson, the learner should be able to:   * Draw and label the alveoli where gaseous exchange occur in human beings * Describe how gaseous exchange occurs in alveoli | * Drawing and labeling the alveoli where gaseous exchange occur in human beings * Describing how gaseous exchange occurs in alveoli * Discussion on gaseous exchange at the alveoli | * Chart showing the exchange of gases in alveoli of human beings | * Comprehensive secondary Biology students Bk. 2 page 66 * Teachers bk. 2 pages 34-48 * KLB secondary Biology * Students book 2 Page 61-65 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 96-99 * Golden tips biology pages 86-87 * Gateway secondary Biology pages 119-120 * Longman biology page 67 * High flyer series pages 38-39 |  |
|  | 3-4 | GASEOUS EXCHANGE IN ANIMALS AND PLANTS | Continuous assessment test | By the end of the lesson, the learner should be able to   * Answer all questions asked in the test | * Learners to write down the answers to the questions * Teacher to supervise the students | * Question papers * Marking scheme |  |  |
| 8 | 1-2 | GASEOUS EXCHANGE IN ANIMALS | Gaseous exchange in human beings | By the end of the lesson, the learner should be able to:   * Explain how human beings are adapted to their functions * Able to examine the mammalian lung | * Explaining how human beings are adapted to their functions * Discussion on the adaptations of lungs in humans and examination of mammalian lung | * Lungs from a mammal eg. goat, sheep and cow | * Comprehensive secondary Biology students Bk. 2 page 66 * Teachers bk. 2 pages 34-48 * KLB secondary Biology * Students book 2 Page 59-65 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page * Golden tips biology pages 86-87 * Gateway secondary Biology pages 120 * Longman biology page 66-67 * High flyer series pages 38-39 |  |
|  | 3-4 | GASEOUS EXCHANGE IN ANIMALS | Gaseous exchange in mammals (practical lesson) | By the end of the lesson, the learner should be able to:   * Demonstrate the breathing mechanism of the lungs and diaphragm in a model thoracic cavity * Demonstrate the breathing movement of ribs and muscles by using a model | * Carrying out a demonstration of breathing mechanism in human beings using a model | * A bell jar * Two balloons * Rubber stopper with a hole * Y-shape glass tube * Rubber sheet * String * Petroleum jelly | * Comprehensive secondary Biology students Bk. 2 page 71 * Teachers bk. 2 pages 34-48 * KLB secondary Biology * Students book 2 Page 63 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 96-99 * Golden tips biology pages 86-87 * Gateway secondary Biology pages 117-119 * Longman biology page * High flyer series pages |  |
| 9 | 1 | GASEOUS EXCHANGE IN ANIMALS | Factors affecting the rate of breathing | By the end of the lesson, the learner should be able to:   * Examine the factors affecting the rate of breathing in human beings * Explain the factors which control the rate of breathing in human beings | * Examining the factors affecting the rate of breathing in human beings * Discussion on factors affecting the rate of breathing in human beings | * Chart with table showing factors affecting breathing | * Comprehensive secondary Biology students Bk. 2 page 66-67 * Teachers bk. 2 pages 34-48 * KLB secondary Biology * Students book 2 Page 65-66 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 101-102 * Golden tips biology pages 87 * Gateway secondary Biology pages 119 * Longman biology page 67-68 * High flyer series pages |  |
|  | 2 | GASEOUS EXCHANGE IN ANIMALS | Respiratory diseases | By the end of the lesson, the learner should be able to:   * State the causes of respiratory diseases * Discuss the symptoms of respiratory disease * explain the prevention measures of respiratory diseases | * Discussion on causes, symptoms and prevention measures of respiratory diseases | * Chart on respiratory diseases | * Comprehensive secondary Biology students Bk. 2 page 71 * Teachers bk. 2 pages 34-48 * KLB secondary Biology * Students book 2 Page 67-70 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 104-107 * Golden tips biology pages 87-88 * Gateway secondary Biology pages 121 * Longman biology page 68 * High flyer series pages |  |
|  | 3-4 | GASEOUS EXCHANGE IN ANIMALS | Gaseous exchange in animals (practical lesson) | By the end of the lesson, the learner should be able to demonstrate the effect of exercise on the rate of breathing | * Carrying out experiment to show the effect of exercise on rate of breathing | * Chair * Stop watch * Skipping rope | * Comprehensive secondary Biology students Bk. 2 page 74 * Teachers bk. 2 pages 34-48 * KLB secondary Biology * Students book 2 Page 66-67 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 101-104 * Golden tips biology pages * Gateway secondary Biology pages * Longman biology page * High flyer series pages |  |
| 10 | 1 | RESPIRATION | Introduction  Tissue respiration | By the end of the lesson, the learner should be able to:   * Define respiration * State the significance of respiration * Draw and label mitochondria | * Discussion on definition and significance of respiration * Drawing and labeling mitochondria | * Chart showing diagram of mitochondria | * Comprehensive secondary Biology students Bk. 2 page 74 * Teachers bk. 2 pages 49-57 * KLB secondary Biology * Students book 2 Page 73-74 * KLB teachers book 2 pages 45-48 * Longhorn secondary biology: students book 2 page 112-113 * Golden tips biology pages 91 * Gateway secondary Biology pages 130 * Longman biology page 71 * High flyer series pages |  |
|  | 2 | RESPIRATION | Anaerobic respiration | By the end of the lesson, the learner should be able to:   * Define Anaerobic respiration * Describe Anaerobic respiration in plants * Describe Anaerobic respiration in animals | * Defining Anaerobic respiration * Discussion on Anaerobic respiration in plants and animals | * Chart showing diagram of mitochondria | * Comprehensive secondary Biology students Bk. 2 page 76-77 * Teachers bk. 2 pages 49-57 * KLB secondary Biology * Students book 2 Page 77-78 * KLB teachers book 2 pages 45-48 * Longhorn secondary biology: students book 2 page 116-119 * Golden tips biology pages 92-93 * Gateway secondary Biology pages 131 * Longman biology page 72 * High flyer series pages 41-42 |  |
|  | 3-4 | RESPIRATION | Respiration (practical lesson) | By the end of the lesson, the learner should be able to:   * Identify the gas given off when food is burnt * Investigate the gas produced during fermentation | * Carrying out experiments to investigate the gas produced when food is burnt * Discussion on the gas produced when food is burnt | * Retort stand * Maize flour * Test-tubes * Source of heat * Boiling tubes * Delivery tube * Rubber stopper * Lime water * clump | * Comprehensive secondary Biology students Bk. 2 page 80-81 * Teachers bk. 2 pages 49-57 * KLB secondary Biology * Students book 2 Page 75-74 * KLB teachers book 2 pages 45-48 * Longhorn secondary biology: students book 2 page 116-118, 120-121 * Golden tips biology pages * Gateway secondary Biology pages * Longman biology page * High flyer series pages |  |
| 11 | 1-2 | RESPIRATION | Economic importance of anaerobic respiration | By the end of the lesson, the learner should be able to:   * State the economic importance of anaerobic respiration * Discuss the economic importance of anaerobic respiration in both plants and animals | * Discussion on economic importance of anaerobic respiration | * Chart on the economic importance of anaerobic respiration | * Comprehensive secondary Biology students Bk. 2 page 77 * Teachers bk. 2 pages 49-57 * KLB secondary Biology * Students book 2 Page 77-78 * KLB teachers book 2 pages 45-48 * Longhorn secondary biology: students book 2 page 119-120 * Golden tips biology pages 92-93 * Gateway secondary Biology pages 130 * Longman biology page 71 * High flyer series pages 41 |  |
|  | 3-4 | RESPIRATION | Aerobic respiration | By the end of the lesson, the learner should be able to:   * Explain anaerobic respiration * Distinguish between anaerobic and aerobic respiration * Compare energy production in anaerobic and aerobic respiration | * explain aerobic respiration * Distinguishing between aerobic respiration and anaerobic respiration * Discussion on energy formation and energy output in aerobic and anaerobic respiration | * Chart on the economic importance of aerobic respiration | * Comprehensive secondary Biology students Bk. 2 page 74-76 * Teachers bk. 2 pages 49-57 * KLB secondary Biology * Students book 2 Page 74-76 * KLB teachers book 2 pages 45-48 * Longhorn secondary biology: students book 2 page 113-115 * Golden tips biology pages 91-92 * Gateway secondary Biology pages 130-131 * Longman biology page 72-73 * High flyer series pages 41 |  |
| 12 | 1-2 | RESPIRATION | Tissue respiration  (practical lesson) | By the end of the lesson, the learner should be able to:   * Investigate the production of heat by germinating seeds * Demonstrate that respiration takes place in plants | * Carrying out the various experiments in groups * Discussion on the observation or results observed | * Two vacuum flasks * Two thermometers * Beans and cotton wool * Sterilizer such as formalin * Bell jar * Soda lime * Two conical flasks * Black cloth * Lime water * Potted plant * Delivery tube * Filter pump * Corks * Petroleum jelly | * Comprehensive secondary Biology students Bk. 2 page 81-82 * Teachers bk. 2 pages 49-57 * KLB secondary Biology * Students book 2 Page 76-77 * KLB teachers book 2 pages 45-48 * Longhorn secondary biology: students book 2 page 115 * Golden tips biology pages 94 * Gateway secondary Biology pages * Longman biology page * High flyer series pages |  |
|  | 3-4 | RESPIRATION | Tissue respiration  (practical lesson) | By the end of the lesson, the learner should be able to:   * Show aerobic respiration in animals * Show the aerobic respiration takes place in animals | * Carrying out the experiments * Discussion on the results observed | * Grasshopper * Two pieces of insulin cloth or wire net * Bicarbonate indicator * Two conical flasks * Measuring cylinder * Two rubber bands * Two labels * Bell jar * Lime water * Delivery tubes * Soda lime * Rat * Filter pump * Petroleum jelly | * Comprehensive secondary Biology students Bk. 2 page 83-84 * Teachers bk. 2 pages 49-57 * KLB secondary Biology * Students book 2 Page 78 * KLB teachers book 2 pages 45-48 * Longhorn secondary biology: students book 2 page 117 * Golden tips biology pages 94 * Gateway secondary Biology pages * Longman biology page * High flyer series pages |  |
| **13** | **REVISION AND END OF TERM EXAMINATION** | | | | | | | |

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| **BIOLOGY FORM 2 SCHEMES OF WORK – TERM 3** | | | | | | | | |
| **WEEK** | **LESSON** | **TOPIC** | **SUB - TOPIC** | **OBJECTIVES** | **LEARNING/TEACHING ACTIVITIES** | **LEARNING/TEACHING RESOURCES** | **REFERENCES** | **REMARKS** |
| 1 | 1 | EXCRETION AND HOMEOSTASIS | Definition of terms | By the end of the lesson, the learner should be able to:   * Define terms stated * Distinguish between excretion and egestion * Explain the necessity of excretion in plants and animals | * Defining excretion, homeostasis and secretion * Distinguishing between excretion and egestion * Explaining the necessity of excretion in plants and animals | * Chart showing major terms and their definitions | * Comprehensive secondary Biology students Bk. 2 page 86 * Teachers bk. 2 pages 58-68 * KLB secondary Biology * Students book 2 Page 83-84 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 124 * Golden tips biology pages 96 * Gateway secondary Biology pages 141 * Longman biology page 75 * High flyer series pages 44 |  |
|  | 2 | EXCRETION AND HOMEOSTASIS | Excretion in plants | By the end of the lesson, the learner should be able to:   * Describe the methods of excretion in plants * List down useful and harmful excretory products in plants | * Describing the methods of excretion in plants * Listing excretory products in plants | * Chart showing excretory products in plants and methods of excretion in plants | * Comprehensive secondary Biology students Bk. 2 page 86-87 * Teachers bk. 2 pages 58-68 * KLB secondary Biology * Students book 2 Page 83-84 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 124-125 * Golden tips biology pages 96-97 * Gateway secondary Biology pages 141 * Longman biology page 75-76 * High flyer series pages 44 |  |
|  | 3-4 | EXCRETION AND HOMEOSTASIS | Excretion in plants | By the end of the lesson, the learner should be able to:   * Identify the uses of excretory products in plants * Describe the uses of excretory products in plants | * Identifying the uses of excretory products in plants * Describing the uses of excretory products in plants | * Chart showing excretory products , sources and their economic importance in plants | * Comprehensive secondary Biology students Bk. 2 page 88 * Teachers bk. 2 pages 58-68 * KLB secondary Biology * Students book 2 Page 84 * KLB teachers book 2 pages * Longhorn secondary biology: students book 2 page 125-127 * Golden tips biology pages 96-97 * Gateway secondary Biology pages 141 * Longman biology page 76 * High flyer series pages 44 |  |
| 2 | 1 | EXCRETION AND HOMEOSTASIS | Excretion and homeostasis in Animals | By the end of the lesson, the learner should be able to:   * Describe excretion and homeostasis in unicellular animals such as amoeba * Draw an amoeba * Describe excretion in fresh water amoeba | * Describing excretion and homeostasis in unicellular organism such as amoeba * Drawing of amoeba * Describing the excretion of water and nitrogenous wastes in amoeba | * Chart showing an amoeba in stages of excreting water and wastes | * Comprehensive secondary Biology students Bk. 2 page 88 * Teachers bk. 2 pages 58-68 * KLB secondary Biology * Students book 2 Page 84-85 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 127-128 * Golden tips biology pages 97-98 * Gateway secondary Biology pages 142 * Longman biology page 77 * High flyer series pages 44 |  |
|  | 2 | EXCRETION AND HOMEOSTASIS | Excretion and homeostasis in Animals | By the end of the lesson, the learner should be able to:   * Explain the need for complex animals for excretion * List down organs involved In excretion in animals * List down waste products released by various organs | * Explaining the need for complex excretory organs * Listing the excretory organs and substances released | * Chart showing the specialized organs and the main excretory products | * Comprehensive secondary Biology students Bk. 2 page 88 * Teachers bk. 2 pages * KLB secondary Biology * Students book 2 Page 84-87 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 128-131 * Golden tips biology pages 98 * Gateway secondary Biology pages 142 * Longman biology page 77 * High flyer series pages 44-45 |  |
|  | 3-4 | EXCRETION AND HOMEOSTASIS | The human kidney | By the end of the lesson, the learner should be able to:   * Examine the kidney of a mammal * Draw and label the external structure of a kidney * Make a vertical section through the kidney * Identify the internal parts of the kidney | * Examining the kidney * Making a vertical section and identifying the parts of the kidney * Drawing the internal structure of the kidney | * Kidney of a mammal * Sharp knife * Chart showing section of a kidney | * Comprehensive secondary Biology students Bk. 2 page 91, 105 * Teachers bk. 2 pages * KLB secondary Biology 58-68 * Students book 2 Page 88-92 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 132-135 * Golden tips biology pages 100-101 * Gateway secondary Biology pages 144 * Longman biology page 77 * High flyer series pages |  |
| 3 | 1 | EXCRETION AND HOMEOSTASIS | Functions of the nephron | By the end of the lesson, the learner should be able to:   * Draw and label parts of the nephron * Relate its structure to its role in urine formation | * Drawing and labeling the nephron * Discussion on the structure of the nephron in relation to its function | * Chart showing the structure of the nephron | * Comprehensive secondary Biology students Bk. 2 page 92-94 * Teachers bk. 2 pages * KLB secondary Biology 58-68 * Students book 2 Page 90-92 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 135-137 * Golden tips biology pages 101-102 * Gateway secondary Biology pages 145 * Longman biology page 77 * High flyer series pages 47 |  |
|  | 2 | EXCRETION AND HOMEOSTASIS | Neuro-endoctrine system and homeostasis | By the end of the lesson, the learner should be able to:   * Identify the hormones involved in Neuro-endoctrine system and homeostasis eg insulin * Explain the process of urine formation in the kidney * Describe the role of various hormones in urine formation | * Identifying the hormones involved in Neuro-endoctrine system and homeostasis such as insulin, ADH and aldosterone I urine formation * Describing the role of insulin, ADH and aldosterone in urine formation | * Diagram of the nephron showing the movement of sodium ions and water | * Comprehensive secondary Biology students Bk. 2 page 93-94 * Teachers bk. 2 pages * KLB secondary Biology 58-68 * Students book 2 Page 97-100 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 139-142 * Golden tips biology pages 103-104 * Gateway secondary Biology pages 145 * Longman biology page 78 * High flyer series pages 45-47 |  |
|  | 3-4 | EXCRETION AND HOMEOSTASIS | Neuro-endoctrine system and homeostasis | By the end of the lesson, the learner should be able to:   * Describe the components and role of Neuro-endoctrine systems * Distinguish between internal and external environments * Explain the general working of the homeostatic mechanism | * Describing the components and role of the Neuro-endoctrine system * Distinguishing between internal and external environment * explaining the general working of the homeostatic mechanism | * Flow chart showing homeostatic mechanism, positive and negative feedback | * Comprehensive secondary Biology students Bk. 2 page 94-95 * Teachers bk. 2 pages * KLB secondary Biology 58-68 * Students book 2 Page 97-100 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 139-142 * Golden tips biology pages 103-104 * Gateway secondary Biology pages 145-146 * Longman biology page 78-79 * High flyer series pages 49-51 |  |
| 4 | 1 | EXCRETION AND HOMEOSTASIS | osmoregulation | By the end of the lesson, the learner should be able to:   * Define osmoregulation * Describe the role of the kidney in osmoregulation * Explain the role of hypothalamus in osmoregulation | * Defining   Osmoregulation   * Describing the role of the kidney in osmoregulation | * Flow chart showing the homeostatic mechanism in regulating osmotic pressure by the kidney | * Comprehensive secondary Biology students Bk. 2 page 95-97 * Teachers bk. 2 pages 58-68 * KLB secondary Biology Students book 2 Page 100-101 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 140-142 * Golden tips biology pages 105 * Gateway secondary Biology pages 145-146 * Longman biology page 78 * High flyer series pages 45-47 |  |
|  | 2-3 | EXCRETION AND HOMEOSTASIS | Diabetes insipidus and other common kidney diseases | By the end of the lesson, the learner should be able to:   * Explain Diabetes insipidus and other common kidney diseases * Describe the causes of Diabetes insipidus and other common kidney diseases * State possible control/prevention methods of Diabetes insipidus | * Explaining Diabetes insipidus and other common kidney diseases * Describing the causes of Diabetes insipidus and other common kidney diseases | * Chart showing the diseases, causes, symptoms and control/ prevention methods | * Comprehensive secondary Biology students Bk. 2 page 96, 101-102 * Teachers bk. 2 pages 58-68 * KLB secondary Biology Students book 2 Page 49-54 * KLB teachers book 2 pages 101, 93-94 * Longhorn secondary biology: students book 2 page 142, 138-140 * Golden tips biology pages 105, 102-103 * Gateway secondary Biology pages 147 * Longman biology page 77 * High flyer series pages 47 |  |
|  | 4 | EXCRETION AND HOMEOSTASIS | Continuous assessment test | By the end of the lesson, the learner should be able to:   * Answer all the questions asked in the test | * Learner to answer all the questions * Teacher to prepare and give the test * Teacher to supervise the students | * Question paper * Marking schemes |  |  |
| 5 | 1 | EXCRETION AND HOMEOSTASIS | Excretion and homeostasis in animals | By the end of the lesson, the learner should be able to:   * Draw and label parts of the skin * Relate the parts of the skin to their functions | * Discussion on the parts of the skin and their functions * Drawing and labeling parts of the skin and relating parts to their functions | * Chart showing the section of the skin | * Comprehensive secondary Biology students Bk. 2 page 89-90 * Teachers bk. 2 pages 58-68 * KLB secondary Biology Students book 2 Page 85-87 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 129-132 * Golden tips biology pages 98-100 * Gateway secondary Biology pages 142 * Longman biology page 78 * High flyer series pages 45 |  |
|  | 2 | EXCRETION AND HOMEOSTASIS | The role of the skin in homeostasis | By the end of the lesson, the learner should be able to:   * Distinguish between osmoregulation and thermoregulation * Describe the role of the skin in osmoregulation * Describe the role of the skin in thermoregulation | * Distinguishing between osmoregulation and thermoregulation * Describing the role of the skin in osmoregulation * Describing the role of the skin in thermoregulation | * Chart showing diagram of the skin * Photograph of a section of the skin | * Comprehensive secondary Biology students Bk. 2 page 98-99 * Teachers bk. 2 pages 58-68 * KLB secondary Biology Students book 2 Page 98-101 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 131-132 * Golden tips biology pages 98-100 * Gateway secondary Biology pages 142-143 * Longman biology page 78 * High flyer series pages 45-47 |  |
|  | 3-4 | EXCRETION AND HOMEOSTASIS | Thermoregulation in human beings | By the end of the lesson, the learner should be able to:   * Identify behavioral and physiological means of thermoregulation in animals * Describe behavioral and physiological means of thermoregulation in animals | * Identifying behavioral and physiological means of thermoregulation in animals * Describing behavioral and physiological means of thermoregulation in animals | * Photographs of warmly dressed people during cold weather * Photograph of people with light cloth during hot weather | * Comprehensive secondary Biology students Bk. 2 page 99-100 * Teachers bk. 2 pages 58-68 * KLB secondary Biology Students book 2 Page 98-100 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page * Golden tips biology pages 106-108 * Gateway secondary Biology pages 147-148 * Longman biology page 78 * High flyer series pages |  |
| 6 | 1 | EXCRETION AND HOMEOSTASIS | Heat loss and heat gain | By the end of the lesson, the learner should be able to:   * Explain Heat loss and heat gain * Describe the various methods of Heat loss and heat gain in mammals | * Explaining Heat loss and heat gain * Discussion on methods of Heat loss and heat gain in mammals | * Resource person e.g. physics teacher to describe methods of heat loss and heat gain | * Comprehensive secondary Biology students Bk. 2 page 99-100 * Teachers bk. 2 pages 58-68 * KLB secondary Biology Students book 2 Page 98-100 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 149-153 * Golden tips biology pages 106-108 * Gateway secondary Biology pages 148 * Longman biology page 78-79 * High flyer series pages 49-50 |  |
|  | 2 | EXCRETION AND HOMEOSTASIS | Surface area to volume ratio in relation to thermoregulation | By the end of the lesson, the learner should be able to:   * Explain the terms Surface area to volume ratio in relation * Relate the body size of mammals to heat loss and heat gain | * Explaining the terms Surface area to volume ratio in relation * Discussion on the relationship between the body size of mammals to heat loss and heat gain | * Pictures of large sized mammals and small sized mammals | * Comprehensive secondary Biology students Bk. 2 page 99 * Teachers bk. 2 pages 58-68 * KLB secondary Biology Students book 2 Page 100-101 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 152 * Golden tips biology pages 106-108 * Gateway secondary Biology pages 148 * Longman biology page 78-79 * High flyer series pages 49-50 |  |
|  | 3-4 | EXCRETION AND HOMEOSTASIS | The role of the liver in homeostasis | By the end of the lesson, the learner should be able to:   * Draw and label the liver and its associated parts * Describe the liver and its role in homeostasis | * Drawing and labeling the liver and its associated parts * Describing the liver and its role in homeostasis | * Chart showing the external structure of the liver in relation to the gut, gall bladder and blood vessels | * Comprehensive secondary Biology students Bk. 2 page 102-104 * Teachers bk. 2 pages 58-68 * KLB secondary Biology Students book 2 Page 93-96 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 153-156 * Golden tips biology pages 108 * Gateway secondary Biology pages 148-149 * Longman biology page * High flyer series pages |  |
| 7 | 1-2 | EXCRETION AND HOMEOSTASIS | Functions of the liver | By the end of the lesson, the learner should be able to:   * List down some of the functions of the liver * Describe the functions of the liver | * Listing down some of the functions of the liver * Describing the functions of the liver | * Chart showing the functions of the liver | * Comprehensive secondary Biology students Bk. 2 page 103-104 * Teachers bk. 2 pages 58-68 * KLB secondary Biology Students book 2 Page 95-96 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page * Golden tips biology pages 108 * Gateway secondary Biology pages 149-150 * Longman biology page 79 * High flyer series pages 48 |  |
|  | 3-4 | EXCRETION AND HOMEOSTASIS | Diseases of the liver | By the end of the lesson, the learner should be able to:   * Identify all the diseases of the liver * Describe the symptoms and possible control of diabetes mellitus and other liver diseases * Explain the causes symptoms and diseases of the liver | * Identifying all the diseases of the liver * Describing the symptoms and possible control of diabetes mellitus and other liver diseases * Explaining the causes symptoms and diseases of the liver | * Chart showing diseases of liver cause and control/treatment | * Comprehensive secondary Biology students Bk. 2 page 103-104 * Teachers bk. 2 pages 58-68 * KLB secondary Biology Students book 2 Page 96-97 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 156-158 * Golden tips biology pages 109-110 * Gateway secondary Biology pages 149 * Longman biology page 79-80 * High flyer series pages 48-49 |  |
| 8 | 1-2 | EXCRETION AND HOMEOSTASIS | Excretion and homeostasis in animals (practical lesson) | By the end of the lesson, the learner should be able to:   * explain catalase enzyme and hydrogen peroxide * describe the role of catalase enzyme in breaking down hydrogen peroxide * use liver and kidney to investigate the reaction | * explaining catalase enzyme and hydrogen peroxide * carrying out the experiment to investigate the effect of catalase enzyme in breaking down hydrogen peroxide * discussion on results obtained in the experiment | * hydrogen peroxide * two beakers * measuring cylinder * piece of liver and kidney * splint * ruler | * Comprehensive secondary Biology students Bk. 2 page 86-105 * Teachers bk. 2 pages 58-68 * KLB secondary Biology Students book 2 Page 96 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 155-156 * Golden tips biology pages 110 * Gateway secondary Biology pages * Longman biology page * High flyer series pages |  |
|  | 3-4 | EXCRETION AND HOMEOSTASIS | Continuous assessment test | By the end of the lesson, the learner should be able to   * Answer all the questions asked in the test | * Learner to answer all the questions * Teacher to supervise students | * Question paper * Marking scheme |  |  |
| 9 | 1-2 | EXCRETION AND HOMEOSTASIS | Role of the liver in the regulation of blood glucose | By the end of the lesson, the learner should be able to:   * Describe the role of the liver in blood sugar control * Describe the role of insulin hormone | * Describing the role of the liver in blood sugar control * Describing the role of insulin hormone | * Chart showing steps in controlling blood sugar levels | * Comprehensive secondary Biology students Bk. 2 page 97 * Teachers bk. 2 pages 58-68 * KLB secondary Biology Students book 2 Page 102-103 * KLB teachers book 2 pages * Longhorn secondary biology: students book 2 page 153-156 * Golden tips biology pages 105-106 * Gateway secondary Biology pages 149 * Longman biology page 79 * High flyer series pages |  |
|  | 3-4 | EXCRETION AND HOMEOSTASIS | Regulation of blood sugar | By the end of the lesson, the learner should be able to:   * Explain the regulation of blood sugar * Describe a flow chart showing the regulation of blood sugar | * Explaining the regulation of blood sugar * Describing a flow chart showing the regulation of blood sugar | * Flow chart showing regulation of blood sugar | * Comprehensive secondary Biology students Bk. 2 page 98 * Teachers bk. 2 pages 58-68 * KLB secondary Biology Students book 2 Page 102-103 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 153-156 * Golden tips biology pages 105-106 * Gateway secondary Biology pages 146 * Longman biology page 78-79 * High flyer series pages |  |
| 10 | 1-2 | EXCRETION AND HOMEOSTASIS | Thermo regulation in other animals | By the end of the lesson, the learner should be able to   * Describe temperature regulation in other animals | * Describing temperature regulation in other animals | * Photographs of birds, reptiles and camels showing behavior of temperature regulation | * Comprehensive secondary Biology students Bk. 2 page 100 * Teachers bk. 2 pages 58-68 * KLB secondary Biology Students book 2 Page 98-100 * KLB teachers book 2 pages 49-54 * Longhorn secondary biology: students book 2 page 146-152 * Golden tips biology pages 106-108 * Gateway secondary Biology pages 148 * Longman biology page * High flyer series pages |  |
|  | 3-4 | EXCRETION AND HOMEOSTASIS | Continuous assessment test | By the end of the lesson, the learner should be able to   * Answer all the questions asked in the test | * Learner to be able to answer questions in the test * Teacher to supervise students as they do the test | * Question paper * Marking scheme |  |  |
| 11 | 1-2 | REVISION | Gaseous exchange in animals | By the end of the lesson, the learner should be able to:   * Relate parts of the lungs to its functions * Draw and label parts of the lungs | * Describing the parts of the lungs and relating the to its functions * Drawing and labeling parts of the lungs | * Chart showing parts of the lungs | * Comprehensive secondary Biology students Bk. 2 page 63-64,66 * Teachers bk. 2 pages 58-68 * KLB secondary Biology Students book 2 Page 59-64 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 91-94 * Golden tips biology pages 86 * Gateway secondary Biology pages 117 * Longman biology page 66-67 * High flyer series pages |  |
|  | 3-4 | REVISION | Gaseous exchange in animals | By the end of the lesson, the learner should be able to describe the functions of the lungs as discussed during gaseous exchange | * Reviewing gaseous exchange and functions of lungs * Reading notes on gaseous exchange | * Notes on gaseous exchange * Charts showing lungs | * Comprehensive secondary Biology students Bk. 2 page 63-65 * Teachers bk. 2 pages 58-68 * KLB secondary Biology Students book 2 Page 59-62 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 91-94 * Golden tips biology pages 85-87 * Gateway secondary Biology pages 117-118 * Longman biology page 65-67 * High flyer series pages |  |
| 12 | 1-4 | REVISION | Gaseous exchange in animals  (practical lesson) | By the end of the lesson, the learner should be able to:   * Identify a mammals lungs * Observe and describe structures of lungs in relation to functions | * Identifying fresh lungs of a mammal * Observing and describing the structure of a mammals lungs in relation to their functions | * Fresh lungs of a cow * Livestock officer | * Comprehensive secondary Biology students Bk. 2 page 63-65 * Teachers bk. 2 pages 58-68 * KLB secondary Biology Students book 2 Page 63 * KLB teachers book 2 pages 35-44 * Longhorn secondary biology: students book 2 page 91-94 * Golden tips biology pages * Gateway secondary Biology pages * Longman biology page 66-67 * High flyer series pages |  |
| **13** | **REVISION AND EXAMINATIONS** | | | | | | | |

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| **BIOLOGY FORM 3 SCHEMES OF WORK – TERM 1** | | | | | | | | |
| **WEEK** | **LESSON** | **TOPIC** | **SUB - TOPIC** | **OBJECTIVES** | **LEARNING/TEACHING ACTIVITIES** | **LEARNING/TEACHING RESOURCES** | **REFERENCES** | **REMARKS** |
| 1 | 1 | CLASSIFICATION 2 | Review of binominal nomenclature | By the end of the lesson, the learner should be able to:   * Classify common organisms into their main taxonomic units * Write scientific names of organisms correctly * List the kingdoms of organisms | * Reviewing the work done in classification 1 * Classifying and naming common organisms like maize, beans, domestic dog and jack | * Local environment * Potted plant * Use of preserved specimen of plants and animals | * Comprehensive secondary Biology students Bk. 3 page 1-2 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 1-3 * KLB teachers book 3 pages 1-3 * Principles of biology vol. 2 pages 1-4 |  |
|  | 2 | CLASSIFICATION 2 | Kingdom monera | By the end of the lesson, the learner should be able to:   * Describe the general characteristics of Kingdom monera | * Discussion on the general characteristics of Kingdom monera | * Local environment on a typical bacteria cell and different types of bacteria | * Comprehensive secondary Biology students Bk. 3 page * Teachers bk. 3 pages * KLB secondary Biology Students book 3 Page 3-4 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 5-6 |  |
|  | 3 | CLASSIFICATION 2 | Kingdom protoctista | By the end of the lesson, the learner should be able to:   * Describe the general characteristics of Kingdom protoctista | * Discussion on the general characteristics of Kingdom protoctista * Listing down the members of kingdom protoctista | * Local environment * Wall charts on protoctista | * Comprehensive secondary Biology students Bk. 3 page 3-6 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 3-4 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 6-8 |  |
|  | 4-5 | CLASSIFICATION 2 | Kingdom protoctista | By the end of the lesson, the learner should be able to:   * Describe the general characteristics of Kingdom protoctista * Observe, draw and name parts of spirogyra, amoeba, paramecium and euglena | * Observing, drawing and naming parts of spirogyra, amoeba, paramecium and euglena | * Local environment * Hand lenses * Microscope * Protozoa infusion (cultured) | * Comprehensive secondary Biology students Bk. 3 page 3-6 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 4-5 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 6-8 |  |
| 2 | 1 | CLASSIFICATION 2 | Kingdom fungi | By the end of the lesson, the learner should be able to:   * Describe the general characteristics of Kingdom fungi * List down all the members of kingdom fungi | * Describing the general characteristics of Kingdom fungi * Naming and drawing organisms in this kingdom | * Local environment * Wall charts on fungi * Specimen of fungi * Hand lenses * microscope | * Comprehensive secondary Biology students Bk. 3 page 6-8 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 6 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 11-14 |  |
|  | 2 | CLASSIFICATION 2 | Kingdom fungi | By the end of the lesson, the learner should be able to:   * Draw and name parts of bread mold (mucor), yeast and mushrooms | * Observing, drawing and labeling structures of yeast, bread mold and mushroom | * Hand lenses * Charts on yeast, mushrooms and bread mold * Live specimens e.g. mushrooms | * Comprehensive secondary Biology students Bk. 3 page 6-8 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 6 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 11-14 |  |
|  | 3 | CLASSIFICATION 2 | Kingdom plantae | By the end of the lesson, the learner should be able to:   * Describe the main characteristics of kingdom plantae * Describe the main characteristics of bryophyta | * Discussion on the main characteristics of kingdom plantae * Describing and stating the main characteristics of bryophyta | * Local environment * Wall charts * Live specimens of moss | * Comprehensive secondary Biology students Bk. 3 page 8-9 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 7 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 15 |  |
|  | 4-5 | CLASSIFICATION 2 | Kingdom plantae | By the end of the lesson, the learner should be able to:   * Identify examples of hyophyta * Observe draw and name parts of liverworts and moss plants | * Observing drawing and labeling structures of moss and liverworts * Asking and answering questions | * Local environment * hand lenses * Wall charts on bryophytes * Live specimens of moss plants | * Comprehensive secondary Biology students Bk. 3 page 8-9 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 7 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 15 |  |
| 3 | 1 | CLASSIFICATION 2 | Kingdom plantae | By the end of the lesson, the learner should be able to:   * Identify examples of pleridophyta * Observe draw and name parts of fern plant | * Discussing main characteristics of division pleridophyes * Stating and describing characteristics of pteridophytes | * Live specimen of fern * Local environment * Hand lenses | * Comprehensive secondary Biology students Bk. 3 page 9-10 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 8-9 * KLB teachers book 3 pages * Principles of biology vol. 2 pages 16 |  |
|  | 2 | CLASSIFICATION 2 | Kingdom plantae | By the end of the lesson, the learner should be able to:   * Identify examples of division spermatophyta * Identify major sub-division of spermatophyta | * Discussing main characteristics pleridophyes * Stating main characteristics of pleridophytes and their sub-division of the same I.e ginkgoales, cycadales and coniferles | * Live specimen spermatophytes * Wall charts on common spermatophytes | * Comprehensive secondary Biology students Bk. 3 page 10-11 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 9-10 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 17 |  |
|  | 3 | CLASSIFICATION 2 | Kingdom plantae -spermatophyta | By the end of the lesson, the learner should be able to:   * List main characteristics of angiospermae * Differentiate between angiospermae and gymnospermae | * Discussing the characteristics of angiospermae and gymnospermae * Differentiating between angiospermae and gymnospermae | * Live specimen of corn leaves * Wall charts on angiospermae and gymnospermae | * Comprehensive secondary Biology students Bk. 3 page 10-11 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 9-10 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 17 |  |
|  | 4-5 | CLASSIFICATION 2 | Kingdom plantae angiospermapyta | By the end of the lesson, the learner should be able to:   * State the characteristics of angiospermapyta * Identify and state major characteristics of classes of angiospermapyta eg dicotyledonare &monocotyledonoe | * Differentiating between class monocotyledonae and dicotyledonae * Observing drawing and labeling parts of monocotyledonous plants | * Live specimen of both monocotyledenous and dicotyledenous plants * B;ade * Staining material * Handlenses * microscope | * Comprehensive secondary Biology students Bk. 3 page 11-12 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 10-11 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 18-20 |  |
| 4 | 1 | CLASSIFICATION 2 | Kingdom animalia | By the end of the lesson, the learner should be able to:   * describe the general characteristics of kingdom animalia | * discussion on the main characteristics of phylum anthropoda * stating and describing general characteristics of kingdom animalia | * Preserved specimen of kingdom animalia * wall charts showing different animals | * Comprehensive secondary Biology students Bk. 3 page 12 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 12-13 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 20-24 |  |
|  | 2 | CLASSIFICATION 2 | Phylum arthropda | By the end of the lesson, the learner should be able to:   * describe the general characteristics of Phylum arthropda * list down the classes of the Phylum arthropda | * stating and describing the general characteristics of Phylum arthropda * discussing the characteristics of arthropods | * Preserved specimen of arthropods * Wall charts showing different arthropods * Local environment * hand lenses | * Comprehensive secondary Biology students Bk. 3 page 14 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 12-13 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 25-26 |  |
|  | 3 | CLASSIFICATION 2 | Class crutacea | By the end of the lesson, the learner should be able to:   * describe the general characteristics of Class crutacea | * describing the general characteristics of Class crutacea * observing, drawing and labeling various types of crutacea | * preserved specimen of crutacea * wall charts showing diagrams of crutacea * local environment * hand lenses | * Comprehensive secondary Biology students Bk. 3 page 14 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 13-14 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 29 |  |
|  | 4-5 | CLASSIFICATION 2 | Class arachnida and insecta | By the end of the lesson, the learner should be able to:   * describe the general characteristics of Class insect * describe the general characteristics of Class arachnida * list down the members of class arachnida and insecta | * discussion on classes arachnida and insect * stating and describing the characteristics of classes arachnida and insect * observing, drawing and labeling parts of various types of arachnida and insecta | * preserved specimen of class arachnida and insecta * wall charts showing diagrams of common members of class arachnida and insecta * local environment * hand lenses | * Comprehensive secondary Biology students Bk. 3 page * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 14-16 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 25,30 |  |
| 5 | 1 | EVALUATION | Continuous assessment test | By the end of the lesson, the learner should be able to   * Answer all questions on the subtopics covered previously | * Learner answers questions * Teacher supervises learners as they write down their examination | * Question papers * Marking scheme | * Comprehensive secondary Biology students Bk. 3 page * Teachers bk. 3 pages * KLB secondary Biology Students book 3 Page 30 * KLB teachers book 3 pages 1-8 * Principles of biology vol. 2 pages |  |
|  | 2 | CLASSIFICATION 2 | Classes chilopoda and diplopoda | By the end of the lesson, the learner should be able to:   * Describe the general characteristics of Classes chilopoda and diplopoda * List down the members of class chilopoda and diplopoda | * Describing the general characteristics of Classes chilopoda and diplopoda * Observing, drawing and labeling of diplopods and chilopods * Differentiating between chilopoda and diplopoda classes | * Preserved specimen of chilopods and diplopods * Wall charts showing diagrams of centipedes and millipedes * Local environment | * Comprehensive secondary Biology students Bk. 3 page 15 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 14 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 31 |  |
|  | 3 | CLASSIFICATION 2 | Phylum chordata | By the end of the lesson, the learner should be able to:   * Describe the general characteristics of Phylum chordata | * Describing the general characteristics of Classes Phylum chordate * listing down the members of Phylum chordata | * Preserved specimen of Phylum chordata * local environment | * Comprehensive secondary Biology students Bk. 3 page 16-17 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 16-17 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 32 |  |
|  | 4-5 | CLASSIFICATION 2 | Classes Pisces and amphibia | By the end of the lesson, the learner should be able to:   * describe the general characteristics of Pisces and amphibia | * describing the general characteristics of Classes Pisces and amphibian * observing, drawing and labeling different types of fish * differentiating between bony and cartilaginous fish | * Wall charts of fish * Live specimen amphibia * Local environment | * Comprehensive secondary Biology students Bk. 3 page 17-19 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page * KLB teachers book 3 pages * Principles of biology vol. 2 pages 32-33 |  |
| 6 | 1 | CLASSIFICATION 2 | Classes amphibian and reptilia | By the end of the lesson, the learner should be able to:   * describe the general characteristics of reptilia | * Describing the general characteristics of reptilia * Observing, drawing and labeling different types of amphibia and reptilia | * Photographs/diagrams of amphibia and reptilia * Preserved specimen reptilia | * Comprehensive secondary Biology students Bk. 3 page 18-19 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 18-19 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 33-34 |  |
|  | 2 | CLASSIFICATION 2 | Class aves | By the end of the lesson, the learner should be able to:   * describe the general characteristics of Class aves | * Describing and stating the general characteristics of Class aves * Observing, drawing and labeling different parts of aves | * Photographs/diagrams of birds | * Comprehensive secondary Biology students Bk. 3 page 19-20 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 19-20 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 34-35 |  |
|  | 3 | CLASSIFICATION 2 | Class Mammalia | By the end of the lesson, the learner should be able to:   * Describe the general characteristics of Class Mammalia * Identify different types of members of Class Mammalia | * Describing and stating the general characteristics of Class Mammalia * Asking and answering questions | * Photographs/diagrams of different mammals | * Comprehensive secondary Biology students Bk. 3 page 20-21 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 21 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 35-36 |  |
|  | 4-5 | CLASSIFICATION 2 | dichotomous key | By the end of the lesson, the learner should be able to:   * Construct a simple dichotomous to identify given organisms | * Constructing a simple dichotomous key using common organisms | * Common plant and animal species | * Comprehensive secondary Biology students Bk. 3 page 21-22 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 22-26 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 37-41 |  |
| 7 | 1 | CLASSIFICATION 2 | dichotomous key | By the end of the lesson, the learner should be able to:   * Use an already constructed dichotomous key to identify given organisms | * Using a dichotomous key to identify arthropods | * Chart showing a constructed dichotomous key | * Comprehensive secondary Biology students Bk. 3 page 21-22 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 27-28 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 37-41 |  |
|  | 2 | CLASSIFICATION 2 | dichotomous key | By the end of the lesson, the learner should be able to:   * Use an already constructed dichotomous key to identify given organisms | * Using a dichotomous key to identify plants | * Chart showing a constructed dichotomous key | * Comprehensive secondary Biology students Bk. 3 page 21-22 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 29 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 37-41 |  |
|  | 3 | CLASSIFICATION 2 | Dichotomous key | By the end of the lesson, the learner should be able to:   * Use an already constructed dichotomous key to identify given organisms | * Using a dichotomous key to identify phylum chordata | * Chart showing a constructed dichotomous key | * Comprehensive secondary Biology students Bk. 3 page 21-22 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages |  |
|  | 1 | EVALUATION & REVISION OF THE TOPICS | Continuous assessment test | By the end of the lesson, the learner should be able to:   * answer all questions on the topic covered * draw and label organisms correctly | * Learner answers questions * Teacher supervises learners as they write down their examination | * Question papers * Marking scheme | * Comprehensive secondary Biology students Bk. 3 page25-26 * Teachers bk. 3 pages 1-8 * KLB secondary Biology Students book 3 Page 30 * KLB teachers book 3 pages 12-27 * Principles of biology vol. 2 pages 42-47 |  |
| 8 | 1 | ECOLOGY | Introduction to ecology | By the end of the lesson, the learner should be able to:   * Define the term ecology and identify terms used in ecology | * Defining the terms used in ecology | * Wall chart showing terms used in ecology and their definitions and their Local environment | * Comprehensive secondary Biology students Bk. 3 page 27-28 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 33-34 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 48 |  |
|  | 2 | ECOLOGY | Introduction to ecology | By the end of the lesson, the learner should be able to:   * Define the term ecology and identify terms used in ecology | * Defining the terms used in ecology | * Wall chart showing terms used in ecology and their definitions and their Local environment | * Comprehensive secondary Biology students Bk. 3 page 27-28 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 33-34 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 48 |  |
|  | 3 | ECOLOGY | Factors affecting the distribution of organisms in an ecosystem  Light | By the end of the lesson, the learner should be able to:   * Identify the types of ecosystems * State and explain how light determines distribution of organisms in an ecosystem | * Discussing how light determines distribution of organisms in an ecosystem | * Instruments for measuring light or their diagrams * Local environment | * Comprehensive secondary Biology students Bk. 3 page 29 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 34 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 50 |  |
|  | 4-5 | ECOLOGY | Factors affecting the distribution of organisms in an ecosystem  temperature | By the end of the lesson, the learner should be able to:   * Identify and describe how temperature determines distribution of organisms in an ecosystem | * Discussing on the role of temperature in the distribution of organisms in an ecosystem * Drawing and labeling parts of a thermometer | * Instruments for measuring temperature or their diagrams * Local environment | * Comprehensive secondary Biology students Bk. 3 page * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 34 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 50 |  |
| 9 | 1 | ECOLOGY | Factors affecting the distribution of organisms in an ecosystem  Rainfall and humidity | By the end of the lesson, the learner should be able to:   * Identify and describe how Rainfall and humidity determines distribution of organisms in an ecosystem | * Discussing on the role of Rainfall and humidity in the distribution of organisms in an ecosystem * Stating and describing how Rainfall and humidity determines distribution of organisms * Drawing of instruments e.g. rain gauge | * Instruments for measuring Rainfall and humidity or their diagrams/photographs * Local environment | * Comprehensive secondary Biology students Bk. 3 page 31 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 34-35 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 51 |  |
|  | 2 | ECOLOGY | Factors affecting the distribution of organisms in an ecosystem  Wind and atmospheric pressure | By the end of the lesson, the learner should be able to:   * describe how Wind and atmospheric pressure determines distribution of organisms in an ecosystem | * describing how Wind and atmospheric affects the distribution of organisms in an ecosystem * Drawing and labeling of instruments used in measuring wind direction & strength | * Instruments for measuring strength of wind, direction of wind and atmospheric pressure * Local environment | * Comprehensive secondary Biology students Bk. 3 page 29-30 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 34-35 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 51-52 |  |
|  | 3 | EVALUATION | Continuous assessment test | By the end of the lesson, the learner should be able to:   * Write down correct answers to questions asked in the test | * Learner recalls and writes down answers questions asked * Teacher supervises learners as they write down their examination | * Question papers * Marking scheme | * Comprehensive secondary Biology students Bk. 3 page 1-30 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 70 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 94 |  |
|  | 4-5 | ECOLOGY | Factors affecting the distribution of organisms in an ecosystem  salinity | By the end of the lesson, the learner should be able to:   * describe how salinity affects the distribution of organisms in aquatic ecosystems | * describing how salinity affects the distribution of organisms in aquatic ecosystems * discussion on the role of salinity in distribution of organisms and methods of measuring salinity | * diagrams of aquatic profile of lakes/oceans * Local environment | * Comprehensive secondary Biology students Bk. 3 page 31 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 35-36 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 51 |  |
| 10 | 1 | ECOLOGY | Factors in an ecosystem and how they affect distribution of organisms  Waves, curves and Tides | By the end of the lesson, the learner should be able to:   * describe how waves, currents and tides affects the distribution of organisms in aquatic ecosystem | * describing how waves, currents and tides affects the distribution of organisms in aquatic ecosystems | * diagrams of aquatic profile of lakes/oceans * Local environment | * Comprehensive secondary Biology students Bk. 3 page 31-32 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 36 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 49- 51 |  |
|  | 2 | ECOLOGY | Factors in an ecosystem and how they affect distribution of organisms  Edaphic factors | By the end of the lesson, the learner should be able to:   * Describe how Edaphic factors affects the distribution of organisms in an ecosystem | * Describing how Edaphic factors affects the distribution of organisms in an ecosystem * Discussion on the role of edaphic factors in distribution of organisms in an ecosystem | * Soil samples of different types from different places * petri dishes * Local environment | * Comprehensive secondary Biology students Bk. 3 page 32 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 36 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 52 |  |
|  | 3 | ECOLOGY | Factors in an ecosystem and how they affect distribution of organisms  (practical lesson) | By the end of the lesson, the learner should be able to:   * Measure certain factors in samples of different soils | * Measuring the PH and soil water content in sandy, clay and loamy soils | * Samples of sandy, clay and loamy soils * Weighing balance * Source of heat * Universal indicator * Funnel/filter papers * Cotton wool * Measuring cylinders | * Comprehensive secondary Biology students Bk. 3 page 32 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 36 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 92-93 |  |
|  | 4-5 | ECOLOGY | Factors in an ecosystem and how they affect distribution of organisms  Geological factors | By the end of the lesson, the learner should be able to:   * Describe how Geological factors affect the distribution of organisms in an ecosystem | * Describing how Geological factors affect the distribution of organisms in an ecosystem * Discussion on the role of geological factors in the distribution of organisms in an ecosystem | * Local environment * Maps or photographs of various landscapes | * Comprehensive secondary Biology students Bk. 3 page 32-33 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page * KLB teachers book 3 pages * Principles of biology vol. 2 pages 54 |  |
| 11 | 1 | ECOLOGY | Abiotic factors in an ecosystem | By the end of the lesson, the learner should be able to:   * Describe how Abiotic factors affect the distribution of organisms in an ecosystem | * Describing how other Abiotic factors affect the distribution of organisms in an ecosystem * Discussion on the role of pollutants, oxygen concentration in the distribution of organisms in an ecosystem | * Local environment * Photographs of polluted environments | * Comprehensive secondary Biology students Bk. 3 page 33 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page * KLB teachers book 3 pages * Principles of biology vol. 2 pages 52-54 |  |
|  | 2 | ECOLOGY | Biotic factors in an ecosystem  Competition | By the end of the lesson, the learner should be able to:   * Describe how competition affects the distribution of organisms in an ecosystem | * Describing how competition affects the distribution of organisms in an ecosystem * Discussion on how competition affects the distribution of organisms in an ecosystem | * Local environment * Graphs showing relation of different organisms in an ecosystem using a factor e.g. food | * Comprehensive secondary Biology students Bk. 3 page 40 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 37-38 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 56-58 |  |
|  | 3 | ECOLOGY | Biotic factors in an ecosystem  Predation and  Symbiosis | By the end of the lesson, the learner should be able to:   * Describe how Predation and Symbiosis affects the distribution of organisms in an ecosystem | * Describing how Predation and Symbiosis affects the distribution of organisms in an ecosystem * Discussion on the role of Predation and Symbiosis in the distribution of organisms in an ecosystem * Drawing and labeling parts of a leguminous root | * Leguminous root * Local environment | * Comprehensive secondary Biology students Bk. 3 page 40-41 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 39-40 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 57-59 |  |
|  | 4-5 | ECOLOGY | Parasitism and saprophytism | By the end of the lesson, the learner should be able to:   * Differentiate between Parasitism and saprophytism * Describe how Parasitism and saprophytism influence the distribution of organisms in an ecosystem e.g. Tick and cattle | * Differentiating between Parasitism and saprophytism * Describing how Parasitism and saprophytism influence the distribution of organisms in an ecosystem e.g. Tick and cattle * Discussion on Parasitism and saprophytism and their role in distribution of organisms in an ecosystem | * Live/preserved specimen of common parasites * Diagrams or photographs of common Parasitism and saprophytism * Local environment | * Comprehensive secondary Biology students Bk. 3 page 41 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 39-40 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 58-59 |  |
| 12 | 1 | ECOLOGY | Recycling of matter and energy flow in an ecosystem | By the end of the lesson, the learner should be able to:   * Describe the interaction between organisms in an ecosystem | * Describing the interaction between organisms in an ecosystem * Discussion on the role of producers, consumers and decomposers in an ecosystem * Construction of a pyramid of biomass and numbers | * Chart showing pyramid of biomass and numbers * Local environment | * Comprehensive secondary Biology students Bk. 3 page 37-39 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 44-45 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 69-71 |  |
|  | 2 | ECOLOGY | Nitrogen cycle & carbon cycle | By the end of the lesson, the learner should be able to:   * Describe the role of decomposers in Nitrogen cycle & carbon cycle | * Describing the Nitrogen cycle * Discussion on the role of decomposers in Nitrogen cycle * Construction of the Nitrogen cycle | * Wall chart on Nitrogen cycle | * Comprehensive secondary Biology students Bk. 3 page 41-42 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 41-42 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 71-73 |  |
|  | 3 | ECOLOGY | Recycling of matter & energy flow in an ecosystem | By the end of the lesson, the learner should be able to:   * Define the terms food chain and food web * Construct food chains and food webs | * Defining the terms food chain and food web * Discussion on food chains and food webs * Constructing food chains and food webs | * Examples of food chains and food webs | * Comprehensive secondary Biology students Bk. 3 page 37-38 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 42-44 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 74 |  |
|  | 4-5 | ECOLOGY | Recycling of matter & energy flow in an ecosystem | By the end of the lesson, the learner should be able to:   * Describe energy flow in a local ecosystem and Construct food chains and food webs | * Studying energy flow in a local ecosystem * Constructing food chains and food webs |  | * Comprehensive secondary Biology students Bk. 3 page 37-38, 39-40 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 42-44 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 69-70 |  |
| **13** | **REVISION AND END OF TERM EXAMINATIONS** | | | | | | | |

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| **BIOLOGY FORM 3 SCHEMES OF WORK – TERM 2** | | | | | | | | |
| **WEEK** | **LESSON** | **TOPIC** | **SUB - TOPIC** | **OBJECTIVES** | **LEARNING/TEACHING ACTIVITIES** | **LEARNING/TEACHING RESOURCES** | **REFERENCES** | **REMARKS** |
| 1 | 1 | ECOLOGY | population | By the end of the lesson, the learner should be able to:   * Define population * List down the characteristics of population | * Defining population * Listing characteristics of population | * Photographs of population * Data on population of some organisms shown e.g. in a graph * Local environment | * Comprehensive secondary Biology students Bk. 3 page 33-34 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 46 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 75-81 |  |
|  | 2 | ECOLOGY | Population estimation | By the end of the lesson, the learner should be able to:   * Explain the use of quadrants and transects as methods of Population estimation | * Describing how quadrants and transects as methods of Population estimation * Discussion on the use of quadrants and transects as methods of Population estimation | * quadrants * wall charts with transects * 2 ropes with IM interval marks | * Comprehensive secondary Biology students Bk. 3 page 35-36 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 46-48 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 82-84 |  |
|  | 3 | ECOLOGY | Population estimation | By the end of the lesson, the learner should be able to:   * Explain the capture –recapture method of population estimation | * Describing capture recapture method of population estimation * Using capture –recapture method by estimating the total number of beads in a beaker | * Beads of two colours * Local environment | * Comprehensive secondary Biology students Bk. 3 page 36-37 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 49 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 84 |  |
|  | 4-5 | ECOLOGY | Population estimation (practical lesson) | By the end of the lesson, the learner should be able to:   * Use quadrant method to estimate population of named organisms within the compound | * Identifying, estimating and recording organisms in the school compound using quadrant method | * School compound * Quadrant * herbs | * Comprehensive secondary Biology students Bk. 3 page 36-37 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 47 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 82-83 |  |
| 2 | 1 | ECOLOGY | Population estimation | By the end of the lesson, the learner should be able to:   * Describe total count, aerial count and aerial photography and other methods of population estimation | * Describing total count, aerial count and aerial photography and other methods of population estimation * Discussion on these methods of population estimation. | * Photographs of populations * Local environment | * Comprehensive secondary Biology students Bk. 3 page 35 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 46 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 81-82 |  |
|  | 2 | ECOLOGY | Adaptation of organisms to their habitats | By the end of the lesson, the learner should be able to:   * Relate to the adaptations of xerophytes to their habitats | * Discuss the adaptations of xerophytes to their habitats | * Photographs and diagrams of xerophytes * Local environment | * Comprehensive secondary Biology students Bk. 3 page 42-44 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 50-51 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 60-62 |  |
|  | 3 | ECOLOGY | Adaptation of organisms to their habitats | By the end of the lesson, the learner should be able to:   * Relate to the adaptations of mesophytes to their habitats | * Discuss the adaptations of mesophytes to their habitats | * Photographs and diagrams of mesophytes * Local environment | * Comprehensive secondary Biology students Bk. 3 page 44-45 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 51 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 62-63 |  |
|  | 4-5 | ECOLOGY | Adaptation of organisms to their habitats | By the end of the lesson, the learner should be able to:   * Relate to the adaptations of hydrophytes to their habitats * Observe, draw and label parts of named hydrophytes, mesophytes and xerophyte plants | * Discuss the adaptations of hydrophytes to their habitats * Observing, drawing and labeling structures of xerophytes, mesophytes and hydrophytes | * Photographs and diagrams of mesophytes e.g. black jack * Hydrophytes e.g. papyrus * Xerophytes e.g. cactus * Hand lens * blade * Local environment | * Comprehensive secondary Biology students Bk. 3 page 42-46 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 52-53 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 63-64 |  |
| 3 | 1 | ECOLOGY | Adaptation of organisms to their habitats | By the end of the lesson, the learner should be able to:   * Relate to the adaptations of halophytes to their habitats | * Discussion on the adaptations of halophytes to their habitats * Describing the adaptations of halophytes to their habitats | * Photographs and diagrams of halophytes * Local environment * Wall charts on halophytes | * Comprehensive secondary Biology students Bk. 3 page 46-47 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 53-54 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 65 |  |
|  | 2 | ECOLOGY | Environmental pollution | By the end of the lesson, the learner should be able to:   * Explain pollution and give examples of pollutants | * Defining pollution and identifying various pollutants * Discussion on pollutants within and around the school compound | * Photographs and diagrams of polluted areas * Local environment | * Comprehensive secondary Biology students Bk. 3 page 46-47 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 55-56 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 100-101 |  |
|  | 3 | ECOLOGY | Air pollution | By the end of the lesson, the learner should be able to:   * Describe the various air pollutants | * Identify various air pollutants * Describing various air pollutants | * Photographs and diagrams of air pollution * Local environment | * Comprehensive secondary Biology students Bk. 3 page 47 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 56 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 100-104 |  |
|  | 4-5 | ECOLOGY | Air pollution | By the end of the lesson, the learner should be able to:   * Discuss the effects of air pollution on the environment * Suggest methods of controlling air pollution | * Discussing the effects of air pollution on human health and animals * Suggesting methods of controlling air pollution | * Photographs and diagrams of areas polluted by air * Local environment | * Comprehensive secondary Biology students Bk. 3 page 47-50 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 56-59 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 101-104 |  |
| 4 | 1 | ECOLOGY | Land/ soil pollution | By the end of the lesson, the learner should be able to:   * Describe various causes of Land/ soil pollution | * Identification and description of various causes of Land/ soil pollution | * Photographs and diagrams of polluted land * Local environment | * Comprehensive secondary Biology students Bk. 3 page 47-50 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 62-64 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 104-105 |  |
|  | 2 | ECOLOGY | Land/ soil pollution | By the end of the lesson, the learner should be able to:   * Discuss the effects of Land/ soil pollution and human health in rural and urban centers * Suggest methods of controlling Land/ soil pollution | * Discussion on the effects of Land/ soil pollution on human and animal health * Suggesting methods of controlling Land/ soil pollution | * Photographs and diagrams of polluted land * Local environment | * Comprehensive secondary Biology students Bk. 3 page 47-50 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 62-64 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 104-105 |  |
|  | 3 | ECOLOGY | Water pollution | By the end of the lesson, the learner should be able to:   * Describe the causes of Water pollution | * Identifying and describing the causes of Water pollution | * Photographs and diagrams of polluted water * Local environment | * Comprehensive secondary Biology students Bk. 3 page 50-52 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 60-62 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 105-108 |  |
|  | 4-5 | ECOLOGY | environmental pollution | By the end of the lesson, the learner should be able to:   * Identify other causes of environmental pollution in rural and urban centers | * Identifying and describing the causes of environmental pollution e.g. noise, radioactive pollutions | * Photographs and diagrams of polluted environment * Local environment | * Comprehensive secondary Biology students Bk. 3 page 47-53 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 64 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 108-112 |  |
| 5 | 1 | EECOLOGY | Continuous assessment test | By the end of the lesson, the learner should be able to:   * Write down correct answers to questions asked in the test | * Learner recalls and writes down answers questions asked * Teacher supervises learners as they write down their examination | * Question papers * Marking scheme | * Comprehensive secondary Biology students Bk. 3 page 33-52 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page * KLB teachers book 3 pages * Principles of biology vol. 2 pages 100-110 |  |
|  | 2 | ECOLOGY | water pollution | By the end of the lesson, the learner should be able to:   * Discuss the effects of water pollution on human health in rural and urban centers and other organisms * Suggest methods of controlling water pollution | * Discussion on the effects of water pollution on human health in rural and urban centers and other organisms * Suggesting methods of controlling water pollution | * Photographs and diagrams of polluted areas * Local environment | * Comprehensive secondary Biology students Bk. 3 page 50-52 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 60-62 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 105-108 |  |
|  | 3 | ECOLOGY | Human diseases | By the end of the lesson, the learner should be able to:   * Identify symptoms of cholera and typhoid fever * State methods of transmission * Suggest control measures | * Discussion on the symptoms, methods of transmission and control of cholera and typhoid fever | * resource person e.g. school nurse * Journals, periodicals and newspapers from library having information about cholera and typhoid fever | * Comprehensive secondary Biology students Bk. 3 page 53-54 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 64-66 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 121-122 |  |
|  | 4-5 | ECOLOGY | protozoan diseases | By the end of the lesson, the learner should be able to:   * Identify the causes, symptoms and methods of transmission and control of malaria | * Discussion on the causes, symptoms and methods of transmission and control of malaria | * resource person e.g. school nurse * Journals, periodicals and newspapers from library having information about malaria | * Comprehensive secondary Biology students Bk. 3 page 54-55 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 66-70 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 129-130 |  |
| 6 | 1 | ECOLOGY | protozoan diseases | By the end of the lesson, the learner should be able to:   * Identify the causes, symptoms and methods of transmission of amoebic dysentery * Suggest control methods of amoebic dysentery | * Discussion on the causes, symptoms and methods of transmission and control of amoebic dysentery | * resource person e.g. school nurse * Wall charts on life cycle of entomoeba hystolitica | * Comprehensive secondary Biology students Bk. 3 page 55 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 66-67 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 131 |  |
|  | 2 | ECOLOGY | Diseases caused by parasitic worms | By the end of the lesson, the learner should be able to:   * Identify the causes, symptoms and methods of transmission of ascariosis | * Discussion on the causes, symptoms and methods of transmission of ascariosis | * Resource person e.g. school nurse * Wall charts on life cycle of ascaris tumbricoides * Journals, periodicals and newspapers having information about ascaris tumbricoides | * Comprehensive secondary Biology students Bk. 3 page 56 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 67-68 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 124-128 |  |
|  | 3 | ECOLOGY | Diseases caused by parasitic worms | By the end of the lesson, the learner should be able to:   * Identify the causes, symptoms and methods of transmission and control of schistomiasis | * Discussion on the causes, symptoms and methods of transmission and control of schistomiasis | * Recourse person e.g. school nurse * Wall charts on life cycle of schistomiasis | * Comprehensive secondary Biology students Bk. 3 page 55-56 * Teachers bk. 3 pages 8-24 * KLB secondary Biology Students book 3 Page 69-70 * KLB teachers book 3 pages 28-56 * Principles of biology vol. 2 pages 124-128 |  |
|  | 4-5 | REPRODUCTION | Introduction to reproduction | By the end of the lesson, the learner should be able to:   * Define reproduction and state its importance * Differentiate between asexual and sexual reproduction | * Defining reproduction * Differentiation between asexual and sexual reproduction * Stating the importance of reproduction | * Recourse person e.g. school nurse * Wall charts on significance of reproduction | * Comprehensive secondary Biology students Bk. 3 page 64,103 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 78 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 141 |  |
| 7 | 1 | REPRODUCTION | Concepts of reproduction | By the end of the lesson, the learner should be able to:   * Describe the appearance and location of chromosomes | * Describing the appearance and location of chromosomes * Modeling chromosomes using Plasticine * Drawing and labeling chromosomes | * Chart showing chromosomes * Plasticine of different colours * Manila paper | * Comprehensive secondary Biology students Bk. 3 page 64-65 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 79 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 141 |  |
|  | 2 | REPRODUCTION | mitosis | By the end of the lesson, the learner should be able to:   * Define mitosis * Describe chromosomic movement during mitosis | * Defining mitosis and description of stages of mitosis * Description of chromosomic movement in mitosis | * Wall Chart showing mitosis * Plasticine of different colours * Use of mitosis pictures | * Comprehensive secondary Biology students Bk. 3 page 65-67 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 79-82 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 142-144 |  |
|  | 3 | REPRODUCTION | mitosis | By the end of the lesson, the learner should be able to:   * Describe e the movement of chromosomes in mitosis * Identify stages of mitosis | * Identifying stages of mitosis * Describing chromosomic movement in mitosis * Drawing the stages of mitosis | * Wall Chart showing mitosis * Plasticine of different colours * Use of mitosis pictures * photomicrographs | * Comprehensive secondary Biology students Bk. 3 page 65-67 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 79-82 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 142-144 |  |
|  | 4-5 | REPRODUCTION | mitosis | By the end of the lesson, the learner should be able to:   * Identify and describe stages of mitosis | * Identifying stages of mitosis * Describing the stages of mitosis * Drawing the stages of mitosis | * Wall Chart showing mitosis * Plasticine of different colours * Use of mitosis pictures * photomicrographs | * Comprehensive secondary Biology students Bk. 3 page 65-67 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 79-82 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 142-144 |  |
| 8 | 1 | REPRODUCTION | Significance of mitosis | By the end of the lesson, the learner should be able to:   * State the significance of mitosis in reproduction | * Stating the significance of mitosis in reproduction * Discussion on the significance of mitosis | * Wall Chart showing stages of mitosis | * Comprehensive secondary Biology students Bk. 3 page 66-67 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 82 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 142-143 |  |
|  | 2 | EVALUATION | Continuous assessment test | By the end of the lesson, the learner should be able to:   * Write down correct answers to questions asked in the test | * Learner recalls and writes down answers questions asked * Teacher supervises learners as they write down their examination | * Question papers * Marking scheme | * Comprehensive secondary Biology students Bk. 3 page 64-112 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 128-131 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 180-185 |  |
|  | 3 | REPRODUCTION | meiosis | By the end of the lesson, the learner should be able to:   * Define meiosis * State the stages of meiosis * Describe the chromosome movement during meiosis | * Defining meiosis * Describing the stages of meiosis * Describing the chromosome movement during meiosis | * Wall Chart showing stages of meiosis * Plasticine * photomicrograhics | * Comprehensive secondary Biology students Bk. 3 page 67-70 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 82-85 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 144-145 |  |
|  | 4-5 | REPRODUCTION | meiosis | By the end of the lesson, the learner should be able to:   * Observe the stages of meiosis * Describe the movement of chromosomes during meiosis | Observing, identifying and drawing stages of meiosis in anther cells under a microscope | * Mature flower of hibiscus plant * microscopes | * Comprehensive secondary Biology students Bk. 3 page 104-105 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 86 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 144-145 |  |
| 9 | 1 | REPRODUCTION | Significance of meiosis in reproduction | By the end of the lesson, the learner should be able to:   * State the significance of meiosis in reproduction | * Stating the significance of meiosis in reproduction * Discussion on the significance of meiosis in reproduction | * Charts showing stages of meiosis * photomicrograhics | * Comprehensive secondary Biology students Bk. 3 page 70 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 86 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 145 |  |
|  | 2 | REPRODUCTION | Difference between mitosis and meiosis | By the end of the lesson, the learner should be able to:   * Differentiate between mitosis and meiosis | * Discussion on the difference between mitosis and meiosis | * Charts on meiosis and mitosis | * Comprehensive secondary Biology students Bk. 3 page 70 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 87 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 145-146 |  |
|  | 3 | REPRODUCTION | Asexual reproduction  Binary fission | By the end of the lesson, the learner should be able to:   * State and describe the importance of Binary fission | * Describing the importance of Binary fission * Drawing on stages of Binary fission in amoeba | * Protozoan infusion * Microscope * Hand lenses | * Comprehensive secondary Biology students Bk. 3 page 70-72 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 87-88 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 146 |  |
|  | 4-5 | REPRODUCTION | Binary fission | By the end of the lesson, the learner should be able to:   * Observe spore formation in bread mould (mucor) and binary fission in paramecium | * Description of binary fission and sporulation in reproduction * Drawing and labeling bread mould showing pore-producing structures | * Protozoan infusion * Light Microscope * Hand lenses * Bread mould (mucor) growing on bread | * Comprehensive secondary Biology students Bk. 3 page 70-72 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 87-88 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 146-147 |  |
| 10 | 1 | REPRODUCTION | Asexual reproduction  Budding | By the end of the lesson, the learner should be able to:   * State and describing the importance of budding in reproduction * Observing drawing and budding cells of yeast | * Identifying, stating and describing the importance of budding in reproduction * Observing, drawing and labeling budding cells of yeast | * Yeast fermentation (prepared an hour to the lesson) * Microscope, slides * Cover slips   Methylene blue stain | * Comprehensive secondary Biology students Bk. 3 page 72 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 89 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 146-147 |  |
|  | 2 | REPRODUCTION | Asexual reproduction in flowering plants | By the end of the lesson, the learner should be able to:   * Describe the external structure of a typical flower | * Identifying the external floral parts * Observing, drawing and describing corolla and calyx of a flower | * Big mature flowers e.g. hibiscus * Hand lenses | * Comprehensive secondary Biology students Bk. 3 page 73 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 90-91 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 152-155 |  |
|  | 3 | REPRODUCTION | Sexual reproduction in flowering plants | By the end of the lesson, the learner should be able to:   * Describe the internal structure of a typical flower | * Identifying the internal floral parts * Observing, identifying and describing stamens and carpels of a flower | * Big mature flowers e.g. hibiscus & Nandi flame * Hand lenses * blade | * Comprehensive secondary Biology students Bk. 3 page 73 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 91 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 154-156 |  |
|  | 4-5 | REPRODUCTION | Sexual reproduction in flowering plants | By the end of the lesson, the learner should be able to:   * Observe, describe and draw different types of pollen grains * Describe the structure of ovules * Describe other characteristics of flowers | * Observing, Identifying, and recording other characteristics of flowers * Comparing insect pollinated and wind pollinated flowers | * A variety of mature wind and insect pollinated flowers * Light microscope * Microscope slides * Cover slips | * Comprehensive secondary Biology students Bk. 3 page 79,105 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 91-92 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 157-158 |  |
| 11 | 1 | REPRODUCTION | Sexual reproduction in flowering plants | By the end of the lesson, the learner should be able to:   * Describe and compare adaptations of wind and insect pollinated flowers | * Observing, Identifying, and recording other characteristics of flowers * Comparing insect pollinated and wind pollinated flowers | * A variety of mature flowers still attached to their stem * Local environment | * Comprehensive secondary Biology students Bk. 3 page 74-75 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 94-95 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 159 |  |
|  | 2 | REPRODUCTION | Sexual reproduction in flowering plants | By the end of the lesson, the learner should be able to:   * Describe the features and mechanisms that hinder self-pollination and self-fertilization | * Describing pollination * Stating the types of pollination * Comparing adaptations of wind pollinated and insect pollinated flowers | * Insect and wind pollinated flowers * Local environment | * Comprehensive secondary Biology students Bk. 3 page 74-78 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 94-95 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 159 |  |
|  | 3 | REPRODUCTION | Sexual reproduction in flowering plants | By the end of the lesson, the learner should be able to:   * Describe the process of fertilization in flowering plants | * Describing double fertilization in flowering plants * Describing features and mechanisms hindering self-pollination and self-fertilization | * Variety of mature flowers * Local environment * Wall charts of various types of flowers | * Comprehensive secondary Biology students Bk. 3 page 78 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 96-97 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 159-160 |  |
|  | 4-5 | REPRODUCTION | Sexual reproduction in flowering plants | By the end of the lesson, the learner should be able to:   * Describe and explain how embryo and seeds are formed in flowering plants | * Describing and explaining the formation of embryo and seed in flowering plants | * Wall charts showing embryo formation in flowering plants * Bean seeds | * Comprehensive secondary Biology students Bk. 3 page 79-80 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 97-98 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 161-162 |  |
| 12 | 1 | REPRODUCTION | Sexual reproduction in flowering plants | By the end of the lesson, the learner should be able to:   * Describe how fruits are formed in flowering plants | * Describing and explaining fruit formation in flowering plants | * Specimen of fruits | * Comprehensive secondary Biology students Bk. 3 page 80-82, 107 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 97-100 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 161-165 |  |
|  | 2 | REPRODUCTION | Sexual reproduction in flowering plants | By the end of the lesson, the learner should be able to:   * Differentiate between a fruit and a seed | * Differentiating between fruits and seeds | * Fruits * seeds | * Comprehensive secondary Biology students Bk. 3 page 82, 107 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 97-100 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 161-165 |  |
|  | 3 | REPRODUCTION | Sexual reproduction in flowering plants | By the end of the lesson, the learner should be able to:   * Describe and explain how different seeds and fruits are dispersed | * Describing and explaining methods of fruit and seed dispersal | * Different types of fruits and seeds | * Comprehensive secondary Biology students Bk. 3 page 80-82 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 102-104 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 164-165 |  |
|  | 4-5 | REPRODUCTION | Classifying fruits | By the end of the lesson, the learner should be able to:   * Classifying various types of fruits and describe their placentation | * Description and examination of placentation of various fruits | * Handouts on types of fruits * Various types of fruits | * Comprehensive secondary Biology students Bk. 3 page 84-87 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 101-104 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 162-165 |  |
| **13** | **REVISION AND END OF TERM EXAMINATIONS** | | | | | | | |

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| **BIOLOGY FORM 3 SCHEMES OF WORK – TERM 3** | | | | | | | | |
| **WEEK** | **LESSON** | **TOPIC** | **SUB - TOPIC** | **OBJECTIVES** | **LEARNING/TEACHING ACTIVITIES** | **LEARNING/TEACHING RESOURCES** | **REFERENCES** | **REMARKS** |
| 1 | 1 | REPRODUCTION | Sexual reproduction | By the end of the lesson, the learner should be able to:   * Differentiate between internal and external fertilization * Describe external fertilization in amphibians | * Differentiating between internal and external fertilization * Discussion on external fertilization in amphibians | * Amphibian eggs in a jelly string * Hand lenses * Local environment | * Comprehensive secondary Biology students Bk. 3 page 91,107 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 104 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 165-166 |  |
|  | 2 | REPRODUCTION | Sexual reproduction in mammals | By the end of the lesson, the learner should be able to:   * Relate the structure of mammalian male reproductive system to its functions | * Relating the structure of mammalian male reproductive system to its functions * Drawing and labeling the male reproductive system | * Wall chart on the male reproductive system * Dissected small mammal | * Comprehensive secondary Biology students Bk. 3 page 93,107 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 105-106 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 166-167 |  |
|  | 3 | REPRODUCTION | Sexual reproduction in mammals | By the end of the lesson, the learner should be able to:   * Relate the structure of mammalian male reproductive organ and spermatozoa to its function | * Drawing and labeling the structure of the spermatozoa * Relating the spermatozoa to its function | * Wall chart on spermatozoa | * Comprehensive secondary Biology students Bk. 3 page 93-95 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 112 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 169 |  |
|  | 4-5 | REPRODUCTION | Sexual reproduction in mammals | By the end of the lesson, the learner should be able to:   * Relate the structure of mammalian female reproductive system to its function | * Discussion of the female reproductive system * Drawing and labeling and relating the female reproductive system to its functions | * Charts showing female reproductive system * Dissected small animals | * Comprehensive secondary Biology students Bk. 3 page 95,107 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 108-110 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 167-168 |  |
| 2 | 1 | REPRODUCTION | Sexual reproduction in mammals | By the end of the lesson, the learner should be able to:   * Relate the structure of mammalian ovum to its function | * Drawing and labeling and relating the structure of the ovum to its functions | * Wall Charts showing structure of the ovum | * Comprehensive secondary Biology students Bk. 3 page 92-93 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 108-109 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 169-170 |  |
|  | 2 | REPRODUCTION | Sexual reproduction in mammals | By the end of the lesson, the learner should be able to:   * Describe internal fertilization in mammals | * Defining fertilization * Discussion on internal fertilization in mammals | * Wall Charts on fertilization process | * Comprehensive secondary Biology students Bk. 3 page 95 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 111-113 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 171-172 |  |
|  | 3 | REPRODUCTION | Sexual reproduction in mammals | By the end of the lesson, the learner should be able to:   * Describe the fertilization process | * Describing the fertilization process * Drawing and labeling the fertilized ovum | * Wall Charts on the process of fertilization | * Comprehensive secondary Biology students Bk. 3 page 95 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 112-114 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 171-172 |  |
|  | 4-5 | REPRODUCTION | Sexual reproduction in mammals | By the end of the lesson, the learner should be able to:   * Describe implantation and the role of the placenta in mammals | * Describing implantation * Explaining the role of the placenta in mammals | * Wall Charts showing the stages of implantation | * Comprehensive secondary Biology students Bk. 3 page 95 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 114-116 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 173-174 |  |
| 3 | 1 | REPRODUCTION | Sexual reproduction in mammals | By the end of the lesson, the learner should be able to:   * Define gestation in mammals * Identify different gestation periods in different mammals | * Defining gestation * Identifying different gestation periods in different mammals | * Wall Charts containing gestation periods of different mammals * Photograph of a foetus | * Comprehensive secondary Biology students Bk. 3 page 97 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 116-117 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 173-174 |  |
|  | 2 | REPRODUCTION | Sexual reproduction in mammals | By the end of the lesson, the learner should be able to:   * Describe birth and explain parental care | * Defining different terms used in birth * Explaining the parental care * Drawing and labeling the foetus | * Wall Charts showing definitions of different terms in birth * Photographs on parturition | * Comprehensive secondary Biology students Bk. 3 page 76 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 117-119 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 177-179 |  |
|  | 3 | REPRODUCTION | Role of hormones in human reproduction | By the end of the lesson, the learner should be able to:   * Describe the role of hormones in reproduction of humans | * Discussion on role of hormones in reproduction of humans | * Wall Charts showing hormones involved with reproduction in human beings and their effects | * Comprehensive secondary Biology students Bk. 3 page 97-98 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 120-123 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 175-176 |  |
|  | 4-5 | REPRODUCTION | Menstrual cycle | By the end of the lesson, the learner should be able to:   * Describe the role of hormones in the menstrual cycle | * Discussion on role of hormones in the menstrual cycle | * Wall Charts on the menstrual cycle | * Comprehensive secondary Biology students Bk. 3 page 97-98 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 121-124 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 175-177 |  |
| 4 | 1 | REPRODUCTION | Sexually transmitted diseases/infections | By the end of the lesson, the learner should be able to:   * Identify symptoms and explain the methods of transmission and prevention of gonorrhea and herpes simplex | * Discussion on symptoms, methods of transmission and prevention of gonorrhea and herpes simplex | * Photographs of body parts affected by STI’s * Resource persons e.g. school nurse | * Comprehensive secondary Biology students Bk. 3 page 99-101 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 123-125 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 179 |  |
|  | 2 | REPRODUCTION | Sexually transmitted diseases | By the end of the lesson, the learner should be able to:   * Identify symptoms and explain the methods of transmission and prevention of syphilis and trichomoniasis | * Discussion on symptoms and explain the methods of transmission and prevention of syphilis and trichomoniasis | * Photographs of body parts affected by STI’s | * Comprehensive secondary Biology students Bk. 3 page 99-100 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 124 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 179 |  |
|  | 3 | REPRODUCTION | Sexually transmitted infections | By the end of the lesson, the learner should be able to:   * Identify symptoms and explain the methods of transmission and prevention of candidiasis and hepatitis | * Discussion on symptoms and explain the methods of transmission and prevention of candidiasis and hepatitis | * Photographs showing the symptoms of candidiasis and hepatitis | * Comprehensive secondary Biology students Bk. 3 page 100-102 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 124-125 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 179 |  |
|  | 4-5 | REPRODUCTION | Sexually transmitted diseases | By the end of the lesson, the learner should be able to:   * Identify the causes and modes of transmission of HIV/AIDS and prevention of HIV and AIDS * Identify effects of HIV/AIDS in human economy | * Identifying the causes and modes of transmission of HIV/AIDS * Discussion on the causes and modes of transmission of HIV/AIDS | * Photographs of patients showing the signs & symptoms HIV and AIDS | * Comprehensive secondary Biology students Bk. 3 page 100-102 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 125-127 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 179-180 |  |
| 5 | 1 | REPRODUCTION | Sexually transmitted diseases | By the end of the lesson, the learner should be able to:   * Identify the symptoms of HIV/AIDS and stages of HIV and AIDS | * Discussion on symptoms of HIV/AIDS | * Photographs of patients showing the signs & symptoms HIV and AIDS | * Comprehensive secondary Biology students Bk. 3 page 102-103 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 125-126 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 180 |  |
|  | 2 | REPRODUCTION | Sexually transmitted diseases | By the end of the lesson, the learner should be able to:   * Explain ways of preventing and controlling the spread of HIV/AIDS | * Explaining ways of preventing and controlling the spread of HIV/AIDS * Discussion on methods of preventing and controlling the spread of HIV/AIDS | * Photographs of patients showing the signs & symptoms HIV and AIDS | * Comprehensive secondary Biology students Bk. 3 page 102-103 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 126 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 179 |  |
|  | 3 | EVALUATION | Continuous assessment test | By the end of the lesson, the learner should be able to:   * Answer questions asked in the test | * Learner recalls and writes down answers to questions asked * Teacher supervises the learners as they write examinations | * Question papers * Marking scheme | * Comprehensive secondary Biology students Bk. 3 page 64-103 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 128-131 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 180-184 |  |
|  | 4-5 | REPRODUCTION | Sexually transmitted diseases | By the end of the lesson, the learner should be able to:   * Discuss the social effects of HIV/AIDS | * Discussion on the social effects of HIV/AIDS | * Handouts on STDs | * Comprehensive secondary Biology students Bk. 3 page 103 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 127 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 180 |  |
| 6 | 1 | REPRODUCTION | Asexual and sexual reproduction | By the end of the lesson, the learner should be able to:   * Explain the advantages and disadvantages of sexual and asexual reproduction | * Explaining the advantages and disadvantages of sexual and asexual reproduction | * Charts showing advantages and disadvantages of sexual and asexual reproduction | * Comprehensive secondary Biology students Bk. 3 page 103 * Teachers bk. 3 pages 25-45 * KLB secondary Biology Students book 3 Page 127-128 * KLB teachers book 3 pages 57-78 * Principles of biology vol. 2 pages 179-180 |  |
|  | 2 | GROWTH AND DEVELOPMENT | Concept of growth and development | By the end of the lesson, the learner should be able to:   * Define the terms growth and development * Describe the sigmoid growth curve | * Defining the terms growth and development * Describing the sigmoid growth curve | * Charts showing sigmoid curve | * Comprehensive secondary Biology students Bk. 3 page 113 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 132 * KLB teachers book 3 pages 79-98 * Principles of biology vol. 2 pages 186 |  |
|  | 3 | GROWTH AND DEVELOPMENT | Measurement of growth | By the end of the lesson, the learner should be able to:   * Describe the phases of sigmoid curve * Describe the intermittent growth curve | * Describing the phases of sigmoid curve * Describing the intermittent growth curve | * Charts showing growth curves | * Comprehensive secondary Biology students Bk. 3 page 113 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 133-135 * KLB teachers book 3 pages 79-98 * Principles of biology vol. 2 pages 186-190 |  |
|  | 4-5 | GROWTH AND DEVELOPMENT | Measurement of growth | By the end of the lesson, the learner should be able to:   * Analyze data on growth rate * Draw growth curves | * Analyzing data on growth rate * Drawing growth curves | * Charts showing growth curves * Data on growth rate | * Comprehensive secondary Biology students Bk. 3 page 113,116-117,125 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 133-135 * KLB teachers book 3 pages 79-98 * Principles of biology vol. 2 pages 190 |  |
| 7 | 1 | GROWTH AND DEVELOPMENT | Growth and development in plants | By the end of the lesson, the learner should be able to:   * Define seed dormancy * Identify factors affecting viability and dormancy of seeds | * Defining seed dormancy * Identifying factors affecting viability and dormancy of seeds | * Dry bean seeds * Dry maize seeds | * Comprehensive secondary Biology students Bk. 3 page 113-114 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 136-137 * KLB teachers book 3 pages 79-98 * Principles of biology vol. 2 pages 190,198 |  |
|  | 2 | GROWTH AND DEVELOPMENT | Growth and development in plants | By the end of the lesson, the learner should be able to:   * Identify factors affecting seed dormancy | * Identifying causes of seed dormancy | * Dry bean seeds * Dry maize seeds | * Comprehensive secondary Biology students Bk. 3 page 113-114 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 136-137 * KLB teachers book 3 pages 79-98 * Principles of biology vol. 2 pages 190,198 |  |
|  | 3 | GROWTH AND DEVELOPMENT | Growth and development in plants | By the end of the lesson, the learner should be able to:   * Define seed germination * Differentiate between types of seed germination | * Observing, drawing and labeling types of seed germination in beans and maize * Differentiate between epigeal and hypogeal germination | * Seedling of maize and beans at different stages of development | * Comprehensive secondary Biology students Bk. 3 page 114-145 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 137,141-142 * KLB teachers book 3 pages 79-98 * Principles of biology vol.2 pages 191 |  |
|  | 4-5 | GROWTH AND DEVELOPMENT | Conditions necessary for germination | By the end of the lesson, the learner should be able to:   * Identifying Conditions necessary for germination - oxygen | * setting up experiments to investigate conditions (oxygen) necessary for germination of seeds | * maize grains and beans seeds * cotton wool * flasks * pyrogallic acid * muslin bags * germination maize and bean seeds | * Comprehensive secondary Biology students Bk. 3 page 114-115 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 138 * KLB teachers book 3 pages 79-98 * Principles of biology vol. 2 pages 192-193 |  |
| 8 | 1 | GROWTH AND DEVELOPMENT | Conditions necessary for seed germination | By the end of the lesson, the learner should be able to:   * Investigate the necessity of water and warmth | * Investigating the necessity of water and warmth | * Beans seeds * cotton wool * 4 petri dishes * Labels * Thermometer * refrigerator | * Comprehensive secondary Biology students Bk. 3 page 127-128 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 138,140 * KLB teachers book 3 pages 79-98 * Principles of biology vol. 2 pages 192 |  |
|  | 2 | GROWTH AND DEVELOPMENT | Conditions necessary for seed germination | By the end of the lesson, the learner should be able to:   * Investigate the necessity of water and warmth | * Investigating the necessity of warmth | * Beans seeds * cotton wool * 4 petri dishes * Labels * Thermometer * refrigerator | * Comprehensive secondary Biology students Bk. 3 page 127-128 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 138,140 * KLB teachers book 3 pages 79-98 * Principles of biology vol. 2 pages 192 |  |
|  | 3 | EVALUATION | Continuous assessment test | By the end of the lesson, the learner should be able to:   * Write down the correct answers to questions asked in the test | * Learner recalls and writes down answers to questions asked * Teacher supervises the learners as they write down the exams | * Question paper * Marking scheme | * Comprehensive secondary Biology students Bk. 3 page 132 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 134,138 * KLB teachers book 3 pages 79-98 * Principles of biology vol. 2 pages 203,206 |  |
|  | 4-5 | GROWTH AND DEVELOPMENT | Growth in seedling | By the end of the lesson, the learner should be able to:   * Describe the region of growth in seedlings * Identify the regions of growth | * Describing the region of growth in seedlings * Identifying the regions of growth | * Charts on shoot and root tips * Potted plants * Local environment | * Comprehensive secondary Biology students Bk. 3 page 131-132 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 143-144 * KLB teachers book 3 pages 79-98 * Principles of biology vol. 2 pages 193-194 |  |
| 9 | 1 | GROWTH AND DEVELOPMENT | Growth in seedling | By the end of the lesson, the learner should be able to:   * Determine the regions of growth in seedlings * Measure the aspect of growth in a given seedling | * Determine the regions of growth in seedlings by measuring one parameter -height | * Growing seedling * Rulers * Local environment | * Comprehensive secondary Biology students Bk. 3 page 115-116 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 143-144 * KLB teachers book 3 pages 79-98 * Principles of biology vol. 2 pages 194, 196 |  |
|  | 2-3 | GROWTH AND DEVELOPMENT | Primary and secondary growth | By the end of the lesson, the learner should be able to:   * Describe growth in plants I.e. Primary and secondary growths * Investigate primary and secondary growth in a seedling | * Discussion on Primary and secondary growth in plants * Investigating primary and secondary growth in a seedling | * Bean seeds * Beakers * Cotton wool * Soft board * Piece of wire * Indian ink * Thread * Ruler * Petri dishes | * Comprehensive secondary Biology students Bk. 3 page 118-120 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 144-145 * KLB teachers book 3 pages 79-98 * Principles of biology vol. 2 pages 195-198 |  |
|  | 4-5 | GROWTH AND DEVELOPMENT | Role of hormones in plants | By the end of the lesson, the learner should be able to:   * Explain the role of hormones in regulation of growth and development in plants | * Discussion on the role common hormones in growth and development of plants * cytokinius * eltylene * Doscisic acid * Auxines and gibbrellins | * Chart on plant hormones and their effects | * Comprehensive secondary Biology students Bk. 3 page 121-122 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 146-147 * KLB teachers book 3 pages 79-98 * Principles of biology vol. 2 pages 195-199 |  |
| 10 | 1 | GROWTH AND DEVELOPMENT | Apical dominance | By the end of the lesson, the learner should be able to:   * Explain Apical dominance in plants | * Discussion on Apical dominance in plants * Explaining Apical dominance in plants * Stating the application of Apical dominance in agriculture | * Photographs of plants * Specimen of plants that are pruned and others that are not | * Comprehensive secondary Biology students Bk. 3 page 122 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 147-148 * KLB teachers book 3 pages 79-98 * Principles of biology vol. 2 pages 198-199 |  |
|  | 2-3 | GROWTH AND DEVELOPMENT | metamorphosis | By the end of the lesson, the learner should be able to:   * Define metamorphosis * Distinguish between complete and incomplete metamorphosis * Describe complete metamorphosis in housefly and anopheles mosquito | * Defining metamorphosis * Distinguishing between complete and incomplete metamorphosis * Describing complete metamorphosis in housefly and anopheles mosquito | * Chart on the life cycles of housefly and anopheles mosquito | * Comprehensive secondary Biology students Bk. 3 page 118-120 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 148-149 * KLB teachers book 3 pages 79-98 * Principles of biology vol. 2 pages 199-203 |  |
|  | 4-5 | GROWTH AND DEVELOPMENT | Incomplete metamorphosis | By the end of the lesson, the learner should be able to:   * Describe incomplete metamorphosis in a cockroach | * Describing incomplete metamorphosis in a cockroach * Discussion on the life cycle of a cockroach * Drawing and labeling Incomplete metamorphic stages | * Chart on the life cycles of a cockroach * Preserved specimens showing stages of growth in a cockroach | * Comprehensive secondary Biology students Bk. 3 page 124-125 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 144-150 * KLB teachers book 3 pages 79-98 * Principles of biology vol. 2 pages 203 |  |
| 11 | 1-2 | GROWTH AND DEVELOPMENT | Role of growth hormones in insects | By the end of the lesson, the learner should be able to:   * Describe and explain the Role of growth hormones in metamorphosis in insects | * Discussion of the Role of growth hormones in metamorphosis in insects | * Wall Charts on hormones involved in metamorphosis | * Comprehensive secondary Biology students Bk. 3 page 125-126 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 150-151 * KLB teachers book 3 pages 79-98 * Principles of biology vol 2 pages 203 |  |
|  | 3-5 | GROWTH AND DEVELOPMENT | Metamorphosis (practical lesson) | By the end of the lesson, the learner should be able to:   * Observe metamorphosis in some insects | * Observing, identifying, drawing and labeling various stages of insect development | * Eggs of various insects * Pupae and caterpillars * Specimen bottles * Transparent reagent bottles * Green vegetables * Forceps | * Comprehensive secondary Biology students Bk. 3 page 129-130 * Teachers bk. 3 pages 46-64 * KLB secondary Biology Students book 3 Page 150 * KLB teachers book 3 pages 79-98 * Principles of biology vol. 2 pages 200-203 |  |
| **12** | **REVISION AND END OF TERM EXAMINATIONS** | | | | | | | |

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| **BIOLOGY FORM 4 SCHEMES OF WORK – TERM 1** | | | | | | | | |
| **WEEK** | **LESSON** | **TOPIC** | **SUB - TOPIC** | **OBJECTIVES** | **LEARNING/TEACHING ACTIVITIES** | **LEARNING/TEACHING RESOURCES** | **REFERENCES** | **REMARKS** |
| 1 | 1 | GENETICS | Introduction to genetics | By the end of the lesson, the learner should be able to:   * Define the term genetics * Differentiate between heredity and variation * Distinguish between continuous and discontinuous variations | * Defining the term genetics * Differentiating between heredity and variation * Demonstrating tongue rolling | * Members of the class * Teacher to demonstrate tongue rolling | * Comprehensive secondary Biology students Bk. 4 page 1 * Teachers bk. 4 pages 1-13 * KLB secondary Biology Students book 4 Page 1 * KLB teachers book 4 pages 12-30 * Principles of biology vol. 2 pages 207 |  |
|  | 2 | GENETICS | Variation within plants and animals | By the end of the lesson, the learner should be able to:   * Describe continuous and discontinuous variations * Observe variations in plants and animals | * Describing continuous and discontinuous variations * Observing variations in plants and animals in the surrounding | * Students to be observed on variations like tongue rolling, sex, finger prints, eye colour, height * Leaves of different plants * Seeds of different plants | * Comprehensive secondary Biology students Bk. 4 page 1-4 * Teachers bk. 4 pages 1-13 * KLB secondary Biology Students book 4 Page 1-4 * KLB teachers book 4 pages 12-30 * Principles of biology vol. 2 pages 207 |  |
|  | 3 | GENETICS | chromosomes | By the end of the lesson, the learner should be able to:   * Describe the structure, nature and properties of chromosomes | * Reviewing the nature and structure of chromosomes * Discussion on the structure and properties of chromosomes * Drawing and labeling the chromosomes | * Wall chart on structure of chromosomes * Plasticine to mold the chromosomes | * Comprehensive secondary Biology students Bk. 4 page 4-6 * Teachers bk. 4 pages 1-13 * KLB secondary Biology Students book 4 Page 4-7 * KLB teachers book 4 pages 12-30 * Principles of biology vol. 2 pages 221 |  |
|  | 4-5 | GENETICS | chromosomes | By the end of the lesson, the learner should be able to:   * 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 | 1-2 | GENETICS | Practical application of genetics | By the end of the lesson, the learner should be able to:   * Describe areas in which the knowledge of genetics has been applied | * Discussion on scientific fields where genetic knowledge has been applied | * Photographs * Magazines * Newspaper cuttings * Scientific journals | * Comprehensive secondary Biology students Bk. 4 page 23-28 * Teachers bk. 4 pages 1-13 * KLB secondary Biology Students book 4 Page 39-44 * KLB teachers book 4 pages 12-30 * Principles of biology vol. 2 pages 233 |  |
|  | 3 | GENETICS | Practical application of genetics | By the end of the lesson, the learner should be able to:   * Explain the practical applications of genetics | * Discussion on the practical applications of genetics | * Photographs * Magazines * Newspaper cuttings * Scientific journals | * Comprehensive secondary Biology students Bk. 4 page 23-28 * Teachers bk. 4 pages 1-13 * KLB secondary Biology Students book 4 Page 39-44 * KLB teachers book 4 pages 12-30 * Principles of biology vol. 2 pages 233 |  |
|  | 4-5 | EVOLUTION | Introduction to evolution | By the end of the lesson, the learner should be able to:   * Define evolution * Explain the current concepts of the origin of life | * Defining evolution * Explaining the current concepts of the origin of life | * Local museum * Historical sites | * Comprehensive secondary Biology students Bk. 4 page 35-36 * Teachers bk. 4 pages 14-24 * KLB secondary Biology Students book 4 Page 49-51 * KLB teachers book 4 pages 31-37 * Principles of biology vol. 2 pages 238-239 |  |
| 9 | 1 | EVOLUTION | Continuous assessment test | By the end of the lesson, the learner should be able to:   * Write down correct answers to questions asked | * Learner to recall and write down answers to questions asked * Teacher to supervise the learners as they do their exams life | * Question paper * Marking schemes | * Comprehensive secondary Biology students Bk. 4 page 1-36 * Teachers bk. 4 pages 14-24 * KLB secondary Biology Students book 4 Page 46-48 * KLB teachers book 4 pages 31-37 * Principles of biology vol. 2 pages 234-237 |  |
|  | 2 | EVOLUTION | Origin of life | By the end of the lesson, the learner should be able to:   * Explain the current concepts on origin of life | * Explaining current concepts of origin of life * Discussion on evolution theory | * Information from a local museum and historical sites | * Comprehensive secondary Biology students Bk. 4 page 36 * Teachers bk. 4 pages 14-24 * KLB secondary Biology Students book 4 Page 49-51 * KLB teachers book 4 pages 31-37 * Principles of biology vol 2 pages 239-242-243 |  |
|  | 3 | EVOLUTION | Evidence of organic evolution theory | By the end of the lesson, the learner should be able to:   * Describe the study of fossils as evidence of organic evolution theory | * Describing the study of fossils * Discussion on evolution theory based on the study of fossils | * Information from a local museum and historical sites | * Comprehensive secondary Biology students Bk. 4 page 36-37 * Teachers bk. 4 pages 14-24 * KLB secondary Biology Students book 4 Page 51-56 * KLB teachers book 4 pages 31-37 * Principles of biology vol. 2 pages 245-249 |  |
|  | 4-5 | EVOLUTION | Evidence of organic evolution theory | By the end of the lesson, the learner should be able to:   * Describe competitive anatomy as evidence of organic evolution | * Identifying homologous structures in organisms and describing divergent evolution | * Diagrams and photographs of homologous structures * Information from local museums and historical sites * Vertebrate limbs | * Comprehensive secondary Biology students Bk. 4 page 39-40 * Teachers bk. 4 pages 14-24 * KLB secondary Biology Students book 4 Page 59-64 * KLB teachers book 4 pages 31-37 * Principles of biology vol. 2 pages 250-251 |  |
| 10 | 1 | EVOLUTION | Evidence of organic evolution theory | By the end of the lesson, the learner should be able to:   * Describe competitive anatomy | * Identifying analogous structures in organisms and describing convergent evolution * Discussion on divergent evolution | * Diagrams and photographs of analogous structures in organisms * Information from local museums and historical sites * Wings of birds and insects | * Comprehensive secondary Biology students Bk. 4 page 41 * Teachers bk. 4 pages 14-24 * KLB secondary Biology Students book 4 Page 59-64 * KLB teachers book 4 pages 31-37 * Principles of biology vol. 2 pages 250-251 |  |
|  | 2-3 | EVOLUTION | Evidence of organic evolution theory | By the end of the lesson, the learner should be able to:   * Describe occurrence of vestigial structures and geographical distribution of organisms as evidence of organic evolution | * Describing vestigial structures * Discussion on geographical distribution of organisms | * Diagrams and photographs of vestigial structures * Chart of globe showing geographical distribution of organisms * Information from local museums and historical sites | * Comprehensive secondary Biology students Bk. 4 page 37-41 * Teachers bk. 4 pages 14-24 * KLB secondary Biology Students book 4 Page 56,64 * KLB teachers book 4 pages 31-37 * Principles of biology vol. 2 pages |  |
|  | 4-5 | EVOLUTION | Evidence of organic evolution theory | By the end of the lesson, the learner should be able to:   * Describe comparative embryology, cell biology and biochemistry as evidence of organic evolution | * Describing comparative embryology, cell biology and biochemistry as evidence of organic evolution theory | * Diagrams and photographs of embryos of different chorales and plant and animal cells * Information from local museums and historical sites | * Comprehensive secondary Biology students Bk. 4 page 39-42 * Teachers bk. 4 pages 14-24 * KLB secondary Biology Students book 4 Page 59,64-65 * KLB teachers book 4 pages 31-37 * Principles of biology vol. 2 pages 252-253 |  |
| 11 | 1-2 | EVOLUTION | Human evolution | By the end of the lesson, the learner should be able to:   * Describe evolution of hominids | * Describing evolution of hominids from earliest common 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 |  |
|  | 4-5 | EVOLUTION | Mechanism of evolution | By the end of the lesson, the learner should be able to:   * Describe and discuss the struggle for existence and survival for the fittest | * Discussion on Darwin’s theory of natural selection * Discussion on struggle for existence and survival for the fittest | * Information from local museums and historical sites | * Comprehensive secondary Biology students Bk. 4 page 46-47 * Teachers bk. 4 pages 14-24 * KLB secondary Biology Students book 4 Page 68-69 * KLB teachers book 4 pages 31-37 * Principles of biology vol. 2 pages 240-241 |  |
| 12 | 1-2 | EVOLUTION | Mechanism of evolution | By the end of the lesson, the learner should be able to:   * Describe and discuss new concepts of Darwin’s theory | * Discussion on Neo-Darwinism with regard to new discoveries e.g. mutations | * Information from local museums and historical sites | * Comprehensive secondary Biology students Bk. 4 page 47 * Teachers bk. 4 pages 14-24 * KLB secondary Biology Students book 4 Page 67-69 * KLB teachers book 4 pages 31-37 * Principles of biology vol. 2 pages 239-240 |  |
|  | 3 | EVOLUTION | Mechanism of evolution | By the end of the lesson, the learner should be able to:   * Describe natural selection in action | * Describing mechanism of peppered moth | * Photographs of peppered moth | * Comprehensive secondary Biology students Bk. 4 page 46-47 * Teachers bk. 4 pages 14-24 * KLB secondary Biology Students book 4 Page 69-71 * KLB teachers book 4 pages 31-37 * Principles of biology vol. 2 pages 261-262 |  |
|  | 4-5 | EVOLUTION | Mechanism of evolution | By the end of the lesson, the learner should be able to:   * Describe natural selection in nature | * Describing resistance to antibiotics, fungicides and pesticides by organisms | * Journals, periodicals and magazines * Local environment | * Comprehensive secondary Biology students Bk. 4 page 48 * Teachers bk. 4 pages 14-24 * KLB secondary Biology Students book 4 Page 70-71 * KLB teachers book 4 pages 31-37 * Principles of biology vol. 2 pages 262-263 |  |
| **13** | **REVISION AND END OF TERM EXAMINATIONS** | | | | | | | |

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| **BIOLOGY FORM 4 SCHEMES OF WORK – TERM 2** | | | | | | | | |
| **WEEK** | **LESSON** | **TOPIC** | **SUB - TOPIC** | **OBJECTIVES** | **LEARNING/TEACHING ACTIVITIES** | **LEARNING/TEACHING RESOURCES** | **REFERENCES** | **REMARKS** |
| 1 | 1-2 | EVOLUTION | Mechanism of evolution | By the end of the lesson, the learner should be able to:   * Describe the isolation mechanism in speciation | * Discussion on the isolation mechanism in speciation | * Journals, periodicals and magazines * Local environment | * Comprehensive secondary Biology students Bk. 4 page 48 * Teachers bk. 4 pages 14-24 * KLB secondary Biology Students book 4 Page * KLB teachers book 4 pages 31-37 * Principles of biology vol. 2 pages 243-244 |  |
|  | 3 | EVOLUTION | Artificial selection | By the end of the lesson, the learner should be able to:   * Describe Artificial selection in plants and animals and how it leads to speciation | * Identifying the role of artificial selection in evolution * Discussion on hybridization, cultivars and green revolution | * Journals, periodicals and magazines * Local environment | * Comprehensive secondary Biology students Bk. 4 page 48-49 * Teachers bk. 4 pages 14-24 * KLB secondary Biology Students book 4 Page * KLB teachers book 4 pages * Principles of biology vol. 2 pages 263-264 |  |
|  | 4-5 | EVOLUTION | Evolution and sexual reproduction | By the end of the lesson, the learner should be able to:   * Explain the importance of sexual reproduction in evolution | * Explaining the role of sexual reproduction in evolution | * Journals, periodicals and magazines | * Comprehensive secondary Biology students Bk. 4 page 47-48 * Teachers bk. 4 pages 14-24 * KLB secondary Biology Students book 4 Page * KLB teachers book 4 pages * Principles of biology vol. 2 pages 243-244 |  |
| 2 | 1 | RECEPTION RESPONSE AND CO-ORDINATION | Introduction | By the end of the lesson, the learner should be able to:   * Define stimulus * Define irritability * Define response | * Defining stimulus, irritability and response * Demonstrating how stimulus, response and irritability are related and coordinated | * Pin * Candle * Match box * bell | * Comprehensive secondary Biology students Bk. 4 page 52 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 73-74 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 266-267 |  |
|  | 2 | RECEPTION RESPONSE AND CO-ORDINATION | Reception response and co-ordination in plants | By the end of the lesson, the learner should be able to:   * Define tactic and tropic responses * List down tactic responses in plants * List down tropic responses in plants * Differentiate between tactic and tropic responses | * Defining tactic and tropic responses * Defining and demonstrating tropism in plants * List down tactic responses in plants * List down tropic responses in plants * Differentiate between tactic and tropic responses | * Chart showing tactic and tropic responses in plants * Potted seedlings * Source of light * Cotton box | * Comprehensive secondary Biology students Bk. 4 page 52-54 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 76-78 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 294-299 |  |
|  | 3 | RECEPTION RESPONSE AND CO-ORDINATION | Geotropism | By the end of the lesson, the learner should be able to:   * Define geotropism * Describe geotropism in roots and shoots of plants | * Defining and illustrating geotropism * Discussion on geotropism | * Plants with shoots and roots * Charts showing geotropism and phototropism | * Comprehensive secondary Biology students Bk. 4 page 55 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 80-83 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 298-300 |  |
|  | 4-5 | RECEPTION RESPONSE AND CO-ORDINATION | Phototropism and Geotropism | By the end of the lesson, the learner should be able to:   * Differentiate between Phototropism and geotropism * Carry out experiments demonstrating both Phototropism and geotropism in a plant seedling | * Differentiating between Phototropism and geotropism * Carrying out experiments demonstrating both Phototropism and geotropism | * Potted plants * Carton/cardboard * Knife/blade * Source of light * Germinating bean seeds * Clinostat * Cello tape * Cotton wool * Pin * Plasticine * Petri dishes | * Comprehensive secondary Biology students Bk. 4 page 82-83 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 82-83 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 297-300 |  |
| 3 | 1-2 | RECEPTION RESPONSE AND CO-ORDINATION | Reception response and co-ordination in organisms | By the end of the lesson, the learner should be able to:   * Carry out experiments to demonstrate tactic responses to light and water * Carry out experiments to show chemotactic response using fruit juice | * Carrying out experiments to demonstrate tactic response and to show chemotactic response using fruit juice | * 4 test tubes * Black paper * Woodlice * Silverfish * Termites or fly maggots * Plasticine * Moist soil * Dry soil * 3 petri dishes with lids * Fruit flies drosophila melanogarta * Mashed over ripe bananas * Fruit insect net | * Comprehensive secondary Biology students Bk. 4 page 81-82 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 79-80 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 294-295 |  |
|  | 3 | RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS | Hydrotropism and thigmotropism | By the end of the lesson, the learner should be able to:   * Define Hydrotropism and thigmotropism | * Defining Hydrotropism and thigmotropism juice * Discussion on Hydrotropism and thigmotropism | * Charts on Hydrotropism and thigmotropism | * Comprehensive secondary Biology students Bk. 4 page 55 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 83 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 301-302 |  |
|  | 4-5 | RECEPTION RESPONSE AND CO-ORDINATION | Tactic and tropic responses | By the end of the lesson, the learner should be able to:   * State the importance of Tactic and tropic responses | * Discussion on the importance of Tactic and tropic responses | * Chart with listed survival values of Tactic and tropic responses | * Comprehensive secondary Biology students Bk. 4 page 53-55 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 79-80 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 298-302 |  |
| 4 | 1-2 | RECEPTION RESPONSE AND CO-ORDINATION | Plant hormones and their effects on plant growth | By the end of the lesson, the learner should be able to:   * Explain the production of Plant hormones and their effects on plants | * Discussion on production of auxins and their movement and effect on plant | * Chart showing plant hormones and their effects on plants | * Comprehensive secondary Biology students Bk. 4 page 55 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 80-83 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 296-301 |  |
|  | 3-4 | RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS | Hydrotropism (practical lesson) | By the end of the lesson, the learner should be able to:   * Carry out experiment to investigate hydrotropism * Carry out experiment to investigate etiolation | * Carrying out experiments to investigate hydrotropism and etiolation | * Fine wire gauze * Wooden box * Blotting paper * Soil or sand * Soaked beans * Box or dark cupboard * Tins with perforated bases | * Comprehensive secondary Biology students Bk. 4 page 83-84 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 77-78 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 300 |  |
|  | 5 | RECEPTION RESPONSE AND CO-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 |  |
| 5 | 1 | EVALUATION | Continuous assessment test | By the end of the lesson, the learner should be able to:   * Answer the questions asked in the test | * Learner to recall and writes down answers to questions in the test * Teacher to supervise students as they do the test | * Question papers * Marking schemes | * Comprehensive secondary Biology students Bk. 4 page 86-87 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 107-109 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 304-308 |  |
|  | 2-3 | RECEPTION RESPONSE AND CO-ORDINATION | Conditioned reflex actions | By the end of the lesson, the learner should be able to:   * Defined Conditioned reflex actions * Describe Conditioned reflex action using parlous dog * Compare simple and conditioned reflex actions | * Defining Conditioned reflex actions * Describing Conditioned reflex action * Differentiating between simple and conditioned reflex actions | * Chart on the differences between simple and conditioned reflex actions | * Comprehensive secondary Biology students Bk. 4 page 64-65 * Teachers bk. 4 pages 24-65 * KLB secondary Biology Students book 4 Page 90 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 274-275 |  |
|  | 4-5 | RECEPTION RESPONSE AND CO-ORDINATION IN ANIMALS AND PLANTS | The role of hormones in co-ordination in mammals | By the end of the lesson, the learner should be able to:   * Explain the role of endocrine system in a human being * Explain the effect over secretion and under secretion of 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 |  |
| 6 | 1-2 | RECEPTION RESPONSE AND CO-ORDINATION IN ANIMALS AND PLANTS | The role of hormones in co-ordination in mammals | By the end of the lesson, the learner should be able to:   * Isolate and list the similarities and differences between the endocrine and the nervous system | * Explaining the similarities and differences between the endocrine and the nervous system | * Chart on the comparison between endocrine and the nervous system | * Comprehensive secondary Biology students Bk. 4 page 66-67 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 95 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 291-292 |  |
|  | 3 | RECEPTION RESPONSE AND CO-ORDINATION | Effects of drug abuse on human health | By the end of the lesson, the learner should be able to:   * State the effects of drug abuse on human health | * Defining drugs and drug abuse * Discussion on drugs, drug abuse and effects on human health | * Chart with table on effects of drug abuse on human health * Photographs of people affected by drug abuse | * Comprehensive secondary Biology students Bk. 4 page 67-68 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 96 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages |  |
|  | 4-5 | RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS | Structure of mammalian eye | By the end of the lesson, the learner should be able to:   * Draw and label the mammalian eye * State the functions of the mammalian eye | * Drawing and labeling the mammalian eye | * Chart showing the human eye | * Comprehensive secondary Biology students Bk. 4 page 68-69 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 96-97 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 279-281 |  |
| 7 | 1-2 | RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS | Structure of the human eye | By the end of the lesson, the learner should be able to:   * Describe how the structure of the mammalian eye is adapted to its functions | * Discussion on the adaptations of the various parts of the eye to their functions | * Chart showing the mammalian eye * Chart with table showing summary of parts, adaptations and functions of the mammalian heart | * Comprehensive secondary Biology students Bk. 4 page 69-72 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 97-98 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 280-281 |  |
|  | 3-4 | RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS | Structure of the mammalian eye | By the end of the lesson, the learner should be able to:   * Dissect and display parts of the mammalian eye | * Dissecting mammalian eye and identifying the various parts (external and internal) | * mammalian eye * dissecting tray * gloves | * Comprehensive secondary Biology students Bk. 4 page 69 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 97 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 280 |  |
|  | 5 | RECEPTION RESPONSE AND CO-ORDINATION | Image formation in the mammalian eye | By the end of the lesson, the learner should be able to:   * Describe how an image is formed and interpreted in the mammalian eye | * Describing how an image is formed and interpreted in the mammalian eye | * Chart on image formation in the retina | * Comprehensive secondary Biology students Bk. 4 page 69 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 100-101 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 280-281 |  |
| 8 | 1-2 | RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS | Accommodation in the mammalian eye | By the end of the lesson, the learner should be able to:   * Describe Accommodation in the mammalian eye | * Defining accommodation * Drawing diagrams on accommodation of the far and near objects * Discussion on accommodation | * Chart on accommodation of distant and nearby objects in the mammalian eye | * Comprehensive secondary Biology students Bk. 4 page 72-73 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 101-102 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 283-285 |  |
|  | 3 | RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS | Common eye defects | By the end of the lesson, the learner should be able to:   * Name and explain the Common eye defects | * Naming and explaining the Common eye defects | * Chart on defects and their corrections | * Comprehensive secondary Biology students Bk. 4 page 73-75 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 102-104 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 287-288 |  |
|  | 4-5 | RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS | Common eye defects | By the end of the lesson, the learner should be able to:   * Describe Common eye defects and their corrections * Investigate the blind spot In the eye * Investigate which eye is used more during vision | * Describing and illustrating common eye defects e.g. long sightedness and short sightedness | * Chart on eye defects and their corrections * Pencils * Ruler * Paper * Biro * Window/door frame | * Comprehensive secondary Biology students Bk. 4 page 73-75,84 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 102-104 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 289-286 |  |
| 9 | 1-2 | RECEPTION RESPONSE AND CO-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 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 286-287 |  |
| 10 | 1-2 | EVALUATION | Continuous assessment test | By the end of the lesson, the learner should be able to:   * Answer the questions asked in the test | * Learner to recall and writes down answers to questions in the test * Teacher to supervise students as they do the test | * Question papers * Marking schemes | * Comprehensive secondary Biology students Bk. 4 page 86-87 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 107-110 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 304-308 |  |
|  | 3 | RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS | The mechanism of hearing | By the end of the lesson, the learner should be able to:   * Describe the mechanism of hearing | * Discussion on the mechanism of hearing | * Chart showing the mechanism of hearing | * Comprehensive secondary Biology students Bk. 4 page 79-80 * Teachers bk. 4 pages 24-38 * KLB secondary Biology Students book 4 Page 106-107 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 287-289 |  |
|  | 4-5 | RECEPTION RESPONSE AND CO-ORDINATION IN PLANTS AND ANIMALS | Common defects of the ear | By the end of the lesson, the learner should be able to:   * Discuss thick ear drum, damaged cochlea, raptured eardrum, fussed ossicles, otitis media, ostosceleross and tinnitus | * Discussion on common ear defects | * Chart showing common defects of the ear * Ear specialist | * Comprehensive secondary Biology students Bk. 4 page 79-80 * Teachers bk. 4 pages 24-80 * KLB secondary Biology Students book 4 Page 107 * KLB teachers book 4 pages 38-58 * Principles of biology vol. 2 pages 289-290 |  |
| **11-13** | **REVISION AND END OF TERM EXAMINATIONS** | | | | | | | |

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