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BIOLOGY FORM 1 SCHEMES OF WORK – TERM 1

LESSON	TOPIC	SUB - TOPIC	OBJECTIVES	LEARNING/TEACHING ACTIVITIES	LEARNING/TEACHING RESOURCES	REFERENCES	REMARKS
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	• 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	

			3. Write down the difference between plants and animals			2-6 • Golden tips Biology Page 1-2 • KLB teachers book 1 pages 14-16 • Gateway secondary Biology pages 1-3	
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	• Observing, recording and drawing the main external features of plants	• Different types of stems and roots • Different types of small animals	• Comprehensive secondary Biology students Bk. 1 page 8-12 • Teachers bk. 1	

			plants 2. Observe record and draw the main external features of animals	• Observing, recording and drawing the main external features of animals	• Chart on features of plants and animals	pages 5-10 • KLB secondary Biology • Students book Page 10-14 • Golden tips Biology Page 3	
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	
1-2	CLASSIFICATION 1	Binomial nomenclature in naming organisms	By the end of the lesson, the learner should be able to: 1. Define Binomial	• Defining Binomial nomenclature on	Charts on Binomial nomenclature	• Comprehensive secondary Biology students Bk. 1 page	

			nomenclature 2. State the principles of Binomial nomenclature In naming organisms	the principles of Binomial nomenclature • Classification of given organisms using generic and specific names		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	
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	• Description of a cell • Drawing and	• Light microscope • Diagram of light	• Comprehensive secondary Biology students Bk. 1 page	

			2. Draw and label the light microscope	labeling the light microscope	microscope	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	
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	
1-2	THE CELL	Using the light	By the end of the lesson, the	• Permanent slides	• Observing	• Comprehensive	

		microscope with prepared slides	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	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	prepared slides of plant and animal cells • Preparing and mounting onion epidermal cells	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	
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	• 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	

			• Define tissues, organs and organ systems • Give examples of tissues organs and organ systems			pages 32 • Fly higher series pages 6-7	
REVISION AND EXAMINATION							

BIOLOGY FORM 1 SCHEMES OF WORK – TERM 2							
LESSON	**TOPIC**	**SUB - TOPIC**	**OBJECTIVES**	**LEARNING/TEACHING ACTIVITIES**	**LEARNING/TEACHING RESOURCES**	**REFERENCES**	**REMARKS**
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	
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	•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	

			things			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	• 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	

					• Two petri-dishes • Tissue paper	1 pages 28-32 • Gateway secondary biology pages 34-36 • Golden tips biology pages 24-25 • High flyer series pages 10-11	
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 • $50cm^3$ 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	
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	
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	Active transport	By the end of the lesson,	• Discussion on	• Charts on factors	• Comprehensive	

	PHSIOLOGY		the learner should be able to • List down factors affecting active transport • Define active transport • Define the role of active transport in living things	active transport factors affecting active transport and its role in organisms	affecting active transport and role of active transport	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	
1	NUTRITION IN PLANTS	internal structure of a leaf	By the end of the lesson, the learner should be able to	• Drawing and labeling the internal structure	• Chart on the internal structure of the leaf	• Comprehensive secondary Biology students Bk. 1	

			• Draw and label the internal structure of the leaf	of the leaf		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	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	

			• Describe the process of photosynthesis			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	
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	
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	• 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	

			the process of photosynthesis			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	
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 • 500cm^3 beaker • Funnel	• 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	

					• Pod weed • Sodium hydrogen Carbonate Wooden splint • leaf	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 2. Types of carbohydrates 3. 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	

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	• Comprehensive secondary Biology students Bk. 1 page 67-68 • Teachers bk. 1 pages 31-44 • KLB secondary Biology • Students book Page 61-64	

					• DCPIP • Iodine solution	• KLB teachers book 1 pages 37-55 • Gateway secondary biology page 51-52 • Golden tips biology pages 39-40 • Longman biology page 43	
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	• 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	

			enzymes			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	
REVISION AND END OF TERM EXAMS							

BIOLOGY FORM 1 SCHEMES OF WORK – TERM 3							
LESSON	**TOPIC**	**SUB - TOPIC**	**OBJECTIVES**	**LEARNING/TEACHING ACTIVITIES**	**LEARNING/TEACHING RESOURCES**	**REFERENCES**	**REMARKS**
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	
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	By the end of the lesson, the learner should be able to: • Draw and label the	• Drawing of internal structure of different types of teeth	• Jaws of herbivores and carnivores • Model of human	• Comprehensive secondary Biology students Bk. 1 page 77-78	

		Functions of the internal structure of a tooth Common dental diseases	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	• Discussion on the functions of various parts of the teeth • Discussion on common dental diseases	skeleton with teeth on the jaws (artificial teeth) • Chart on teeth with some dental diseases	• 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	
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	
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	
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	• 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	

					• Water bath • White tile • Boiled diastase	• High flyer series pages 14-15	
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	
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	
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	• 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	

			diseases of mineral salts			pages 37-55 • Gateway secondary Biology pages 63	
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	
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	
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