		FORM ONE BIOLOGY		*TERM ONE YEAR 20……*			
WK NO	*L/ NO*	*TOPIC/ SUBTOPIC*	*LESSON / SPECIFIC OBJECTIVES*	*TEACHING / LEARNING ACTIVITIES*	*RESOURCES / MATERIALS*	*REF.*	*REMARKS*
5	1	**INTRODUCTION TO BIOLOGY** Definition of Biology.	***By the end of the lesson, learners should be able to:*** Define Biology.	Brainstorming to elicit responses on what science is all about. Discussion on nature, science and living things; leading to the definition of Biology.		KLB BOOK I *Page 1*	
	2	Branches of Biology	Identify the two main branches of Biology. Name smaller branches of Biology.	Probing questions; Exposition of new terms.		KLB BOOK I *Page 1*	
	3	Importance of Biology.	Identify ways in which studying Biology is useful.	Open discussion on scientific knowledge acquired by learners, relevant courses, careers, emerging issues, e.g. AIDS.	*List of professions related to Biology.*	KLB BOOK I *Page 1*	
	4	Characteristics of living things.	Give characteristics of living things.	Q/A and exposition of new concepts.		KLB BOOK I *Pages 2-3*	
6	1	Laboratory apparatus for collecting specimens.	Identify common laboratory apparatus for collecting specimens.	Collecting and examining specimens.	*Forceps, hand lenses, sweep nets, specimen bottles.*	KLB BOOK I *Pages 3-5*	

	2	Procedure for collecting specimens.	Outline the procedure for collecting specimens for study in the laboratory.	Teacher explains the procedure for collecting lab specimens, citing the precautions to be observed.		KLB BOOK I *Pages 5-6*	
	3,4	Collecting laboratory specimens.	Collect and observe various laboratory specimens.	Collecting specimens and observing them.	*Forceps, hand lenses, sweep nets, specimen bottles.*	Lab manual.	
7	1	**CLASSIFICATION I** Introduction Magnification of a hand lens.	Explain the rationale of classifying organisms. Obtain the magnification of a hand lens.	Q/A and discussion. Drawing magnified objects and obtaining the magnification.	*Diagrams of animals* *Hand lenses.*	KLB BOOK I *Page 8*	
	2	External features of animals.	Identify external features of animals.	Q/A and brief discussion. Examine external features of animals.	*Diagrams of animals, preserved animal specimens.*	KLB BOOK I *Pages 9-13*	
	3,4	External features of plants.	Identify external features of plants.	Q/A and brief discussion. Examine external features of plants such as roots, venation, stems	*Diagrams and specimens of plants, hand lenses.*	KLB BOOK I *Pages 9-13*	
8	1	Importance of classification. Taxonomic units of classification.	Explain the importance of classification. Identify taxonomic units of classification.	Q/A and brief discussion. Exposition of new terms related to taxonomy. Illustrate relative sizes of taxonomic units.	*Chart- diversity of organisms.*	KLB BOOK I *Pages 10-14*	
	2	Kingdoms of organisms. Species.	Identify the five kingdoms of classification. Define a species.	Expository approach of new concepts. Q/A on differences exhibited within a species.		KLB BOOK I *Pages 14-15*	

	3,4	Scientific naming system of organisms.	Explain the principles of binomial nomenclature. Identify the genus name and specific name of an organism.	Detailed discussion on scientific naming system. Oral and written exercises.		KLB BOOK I *Pages 15-17*	
9	1	**THE CELL** Definition of a cell.	Define a cell. Differentiate between unicellular and multicellular organisms.	Q/A, expositions and explanations.		KLB BOOK I *Pages 14-15*	
	2	**The microscope.** Parts of a microscope.	Draw and label a microscope. State the function of each part of a microscope.	Drawing and labeling. Discussion on functionality of a microscope.	*A light microscope and an illustrative chart.*	KLB BOOK I *Pages 18-19*	
	3,4	Handling and using the microscope.	Demonstrate proper skills of handling the microscope. State precautions observed when handling a microscope.	Teacher demonstrations and explanations. Supervised handling of the microscope.	*Light microscopes.*	KLB BOOK I *Pages 19-20*	
10	1,2	Magnification of a microscope.	Define magnification of a microscope. Calculate the magnification of a microscope.	Q/A to review relevant familiar terms. Complete a table of magnifications.	*Objective and eye piece lenses.*	KLB BOOK I *Page 21*	
	3,4	Plant and animal cells under a light (and electron) microscope.	Draw diagrams of plant and animal cells as observed under a light microscope.	Observe permanent slides under a light microscope. Draw and label diagrams of cells.	*Permanent slides of cheek cells, epidermal cells, etc.*	KLB BOOK I *Pages 21-23*	

11	1, 2	Cell organelles.	Draw various cell organelles. State the functions of various cell organelles. State differences between animal and plant cells. Identify similarities between the two.	Exposition of new concepts.		KLB BOOK I *Pages 23-26*	
	3,4	Preparing slides.	Prepare and observe temporary slides	Teacher guides students to prepare onion cells, observe them under a microscope. Drawing and labeling of observed diagrams.	*Microscope, Microscope slides, cover slips, onion bulb, forceps, dropper.*	KLB BOOK I *Page 27*	
12	1	Preparing stained slides.	Prepare and observe stained slides	Teacher guides students to prepare epidermal strips and observe them under a microscope. Drawing and labeling of observed diagrams.	*Microscope, Microscope slides, cover slips, onion bulb, forceps, dropper, iodine solution.*	KLB BOOK I *Page 27*	
	2	Field of view of a microscope.	Relate mm, cm, µ m as units of length. Estimate the diameter of field of view of the low power of the objective lens.	Q/A on inter conversion of metric units. Use low power to focus on the mm scale of a ruler, then deduce the diameter of the field of view.	*Millimetre scale, low power objective lens.*	KLB BOOK I *Page 28*	
	3,4	Estimating size of a cell.	Estimate the diameter of an onion cell.	Use low power to focus on the mm scale of a ruler, then deduce the diameter of the field of view. Count the number of cells per mm, then deduce the size of a cell.	*Prepared slide of onion epidermis, microscope, ruler.*	KLB BOOK I *Page 27*	
13		*END OF TERM ONE EXAMINATIONS*					

		FORM ONE BIOLOGY		*TERM TWO YEAR 20……*			
WK/ NO	***L/ NO***	***TOPIC / SUBTOPIC***	***LESSON OBJECTIVES***	***TEACHING / LEARNING ACTIVITIES***	***RESOURCES / MATERIALS***	***REF***	***REMARKS***
1	1	Cell specialization.	Define cell specialization. Give examples of special cells.	Draw and label special cells. Brief discussion.	*Chart – specialized cells.*	KLB BOOK I *Pages 28-29*	
	2	Tissues in animals.	Define a tissue. Describe various tissues in animals.	Exposition of new concepts. Drawing and labeling tissues.	*Illustrative charts.*	KLB BOOK I *Page 29*	
	3	Tissues in plants.	Describe various tissues in plants.	Exposition of new concepts. Drawing and labeling plant tissues.	*Illustrative charts.*	KLB BOOK I *Pages 30-31*	
	4	Organs systems.	Define an organ. Give examples of organ systems.	Probing questions and detailed discussion.	*Illustrative charts.*	KLB BOOK I *Page 31*	
2	1,2	**CELL PHYSIOLOGY** The cell membrane structure and properties	Define cell physiology. Identify functions of cell structures. Draw and label the cell membrane. State properties of the cell membrane.	Probing questions and detailed discussion. Drawing and labeling the cell membrane.	*Illustrative charts.*	KLB BOOK I *Pages 32-33*	
	3-4	*Diffusion as a p*hysiological process.	Define diffusion. Describe simple experiments to demonstrate diffusion. Explain the role of diffusion in living organisms.	Q/A, teacher demonstrations and discussion.	*$KMnO_4$ crystals or flower dyes or smoke chamber.*	KLB BOOK I *Pages 33-35*	

3	1,2	Rate of diffusion.	Explain how various factors affect the rate of diffusion.	Probing questions and discussion on diffusion gradient, surface area-volume ratio, thickness of membrane, size of molecule and temperature.	*Cubes of various dimensions.*	KLB BOOK I *Page 31*	
	3 4	Osmosis as *a physiological* process. Osmotic terms.	Define osmosis. Describe experiments to demonstrate osmosis. Describe solutions using biological terms.	Group experiments and discussion. Exposition of new terms, isotonic and hypertonic solutions.	*Illustrative chart: semi permeable membrane.*	KLB BOOK I *Pages 36-40*	
4	1,2	Osmosis in plants.	Describe experiments to show osmosis in plants.	Brief discussion and exposition. Examine osmosis in living cells, e.g. onion skin cells.	*Onion skin / irish potato, slides, forceps, common salt, microscope.*		
	3,4	Role of osmosis in plants.	Explain the role of osmosis in plants.	Q/A and guided discussion.		KLB BOOK I *Page 41*	
5	1 2	Osmosis in animals. Role of osmosis in animals.	Describe water relations in animals. Describe role of osmosis in animals. Explain factors that affect osmosis.	Exposition of new terms with probing questions.		KLB BOOK I *Pages 42-43*	
	3,4	Active transport.	Describe water relations in plants. State the role of active transport in plants.	Oral questions and brief discussion.		KLB BOOK I *Page 44*	

6	1	NUTRITION IN PLANTS AND ANIMALS Introduction. Autotrophism and hetetrophism.	Define nutrition. State importance of nutrition. Differentiate between autotrophism and heterotrophsm.	Q/A and guided discussion.		KLB BOOK I *Page 48*	
	2-4	External structure of a leaf.	Describe the external structure of a leaf.	Examine the external structure of a leaves. Draw and label different types of leaves. Q/A and brief discussion on differences between	*Monocotyle-donous and dicotyledo -nous leaves, hand lenses.*	KLB BOOK I *Pages 49-50*	
7	1	C.A.T.					
	2-4	Internal structure of a leaf.	Draw and label the trans- section of a leaf. State the functions of the internal parts of a leaf.	Drawing and labeling a cross-section of a leaf. Discuss the function of each internal part.	*Chart – trans-section of a leaf.*	KLB BOOK I *Pages 50-51*	
8	1	Photosynthetic function of a leaf.	Explain the adaptations of a leaf to its photosynthetic function.	Q/A and detailed discussion.		KLB BOOK I *Page 51*	
	2	The chloroplasts.	Describe the structure of a chloroplast. Explain the adaptations of the chloroplast to its function.	Drawing and labeling a chloroplast. Brief discussion.		KLB BOOK I *Page 51*	

8	3,4	Distribution of stomata.	Account for the distribution of stomata on leaf surfaces.	Group experiments: determine number of stomata on leaf surfaces. Discuss the results.	*Klaes / zebrine/ tradescantia leaves, microscope, cover slips, dropper.*	KLB BOOK I *Pages 52-53*	
9	1,2	The process of photosynthesis. *-Light stage* *-Dark stage*	Identify raw materials for photosynthesis. Describe the light / dark stage of photosynthesis.	Exposition of new concepts, Q/A and detailed discussion.		KLB BOOK I *Pages 53-54*	
	3,4	Test for starch in a leaf. - CO_2.	Test for presence of starch in a leaf.	Group experiments and make inferences from the results.	*Variegated leaves, iodine solution, methylated spirit, source of heat.*	KLB BOOK I *Page 57*	
10	1,2	Effect of amount of light on rate of photosynthesis.	Describe experiments to show the effect of amount of light on rate of photosynthesis.	Group experiments: examine a previously potted plant and test for starch. Discuss the results.	*Destarched leaves.*	KLB BOOK I *Page 57-58*	
	3,4	Effect of CO_2 concentration on rate of photosynthesis.	Describe experiments to show the effect of CO_2 concentration on rate of photosynthesis.	Group experiments: examine plants under different CO_2 concentration. Discuss the results.	*Potted plant NaOH pellets, droppers.*	KLB BOOK I *Pages 57-58*	
11	1,2	Chlorophyll and photosynthesis.	Describe experiments to show that chlorophyll is required for photosynthesis.	Examine a variegated leaf, carry out starch test and discuss the results.	*Variegated leaf iodine solution, heat.*	KLB BOOK I *Pages 58-59*	
	3,4	Oxygen as by-product of photosynthesis.	Show that oxygen is a by-product of photosynthesis.	Teacher demonstration and carrying out tests for oxygen.	*Test tubes, water plant, wooden splint, $NaHCO_3$.*	KLB BOOK I *Page 59*	
		END OF TERM TWO EXAMINATIONS					

BIOLOGY FORM ONE TERM THREE ONE YEAR 20 ……							
WK /NO	***L/ NO***	***TOPIC / SUBTOPIC***	***LESSON OBJECTIVES***	***TEACHING / LEARNING ACTIVITIES***	***RESOURCES / MATERIALS***	***REF***	***REMARKS***
1	1,2	**Chemicals of life:** Carbohydrates.	Name classes of carbohydrates. State properties and functions of monosacchrides, disacchrides and polysacchrides.	Exposition of new concepts, oral questioning and brief discussion.		KLB BOOK I *Pages 59-60*	
	3,4	Test for starch in food substances.	Carry our tests to determine presence of starch in food substances.	Group experiments: making observations and drawing conclusions.	*Iodine solution, distilled water, test tubes, food substances.*	KLB BOOK I *Pages 61-62*	
2	1	Test for reducing sugars.	Carry our tests to determine presence of reducing sugars in given food substances.	Group experiments: making observations and drawing conclusions.	*Glucose, Benedict's solution, water bath, containers.*	KLB BOOK I *Page 62*	
	2 3	Test for non-reducing sugars. Properties of lipids.	Carry our tests to determine presence of non-reducing sugars. Identify properties of lipids.	Group experiments: making observations and drawing conclusions.	*Sucrose, Benedict's solution, water bath, HCl, $NaHCO_3$ solution.*	KLB BOOK I *Pages 62-63*	
	4	Functions of lipids.	State functions of lipids.	Exposition of new concepts. Brief discussion.		KLB BOOK I *Page 64*	
3	1	Test for lipids.	Describe experiments to show presence of lipids.	Group experiments: making observations and drawing conclusions.	*Fat / oil, ethanol, filter paper.*	KLB BOOK I *Page 64*	

	2	Proteins. - constituents and functions.	Identify constituents of proteins. State functions of proteins.	Exposition of new concepts. Brief discussion.		KLB BOOK I *Page.*	
	3,4	Test for proteins.	Describe experiments to show presence of proteins.	Group experiments: making observations and drawing conclusions.	*NaOH solution, egg albumen or milk, test tubes, droppers, $CuSO_{47}$ solution.*	KLB BOOK I *Page.*	
4	1,2	Enzymes.	Define an enzyme. Differentiate between intracellular and extracellular enzymes. Identify common enzymes.	Exposition of new concepts. Brief discussion.		KLB BOOK I *Page.*	
	3,4	Enzymes and temperature.	Illustrate graphically the effect of temperature on enzyme activity.	Group experiments, analyse the observations made.	*Benedict's solution, iodine, water bath, thermometer, starch powder, amylase, graph papers.*	KLB BOOK I *Pages 67-68*	
5	1	Enzymes and pH.	Illustrate graphically the effect of pH on enzyme activity.	Group experiments, analyse the observations made. Sketch graphs to represent the observations made.	*Graph papers.*	KLB BOOK I *Page 68*	
	2	Enzymes and substrate concentration.	Explain the effect of substrate concentration on rate of enzyme activity.	Probing questions and brief discussion.		KLB BOOK I *Page 69*	

5	3	Importance of enzymes.	Discuss the importance of enzymes.	Q/A and brief discussion.		KLB BOOK I *Page 69-70*	
	4	Enzyme inhibitors.	Define an enzyme inhibitor. Describe various enzyme competitive inhibitors.	Probing questions and exposition of new ideas.		KLB BOOK I *Page 69*	
6	1	**Nutrition in animals.** Heterotrophic mode of nutrition.	Describe various modes of heterotrophic nutrition. Differentiate between heterodonts and homodonts.	Exposition of new ideas coupled with probing questions.	*Specimens of various sets of teeth.*	KLB BOOK I *Pages 72-73*	
	2,3	Dental formula.	Identify components of a dental formula. Relate dental formulas with feeding habits of animals.	Probing questions, exposition and discussion. Compare dentition in carnivores, herbivores and omnivores.	*Jawbones of rabbit, sheep, dog. Picture of human skull.*	KLB BOOK I *Pages 73-74*	
	4,	Structure of a tooth.	Draw and label vertical sections of teeth.	Drawing and labeling.	*Charts-vertical section of teeth.*	KLB BOOK I *Pages 75-76*	
7	1						
	2,3	Dental diseases.	Identify common dental defects and diseases.	Open discussion on oral hygiene. Brief discussion on dental caries and	*Photographs of teeth with dental disorders.*	KLB BOOK I *Pages 77-78*	
	4	C.A.T					

8	1,2	Digestive system in animals. Introduction. The digestive system	Define ingestion, digestion, mastication, digestion and egestion. Draw and label the digestive tract.	Q/A and brie discussion. Drawing and labeling.	*Chart- the digestive system.*	KLB BOOK I *Pages 78-79*	
	3, 4	Digestion in the mouth. Digestion in the stomach.	Describe digestion of food in the mouth and in the stomach.	Probing questions, exposition of new terms and brief discussion.		KLB BOOK I *Pages 77-80*	
9	1	Digestion in the duodenum.	Describe digestion of food in the duodenum.	Exposition and brief discussion.	*Cooking oil, $NaHCO_3$ solution, test tubes.*	KLB BOOK I *Page 80*	
	2	Emulsification of fats.	Describe simple experiments to show emulsification of fats.	Teacher demonstration; Discussion.		KLB BOOK I *Page 81*	
	3,4	Digestion in ileum.	Describe digestion of food in the ileum.	Probing questions, exposition of new terms and brief discussion.		KLB BOOK I *Page 81*	
10	1	Food absorption.	Explain adaptive features of the ileum.	Drawing and lebelling diagrams & discussion.		KLB BOOK I *Pages 83-84*	
	2	Food assimilation & egestion.	Identify the forms in which food is assimilated.	Probing questions; Brief discussion.		KLB BOOK I *Page 84*	

10	3	Vitamins.	List down types of vitamins and their sources.	Copying a table of vitamins, their sources, functions and deficiency symptoms.		KLB BOOK I *Pages 85-86*	
	4	Test for vitamin C.	Carry out an experiment to test for vitamin C.	Group experiments and making analytical inferences.	*Substrates, DCPIP, ascorbic acid.*	KLB BOOK I *Page 87*	
11	1,2	Mineral salts.	Classify mineral salts. Explain importance of minerals.	Q/A and brief discussion. Copy a table showing type of mineral, the source and the function in the body and deficiency symptoms.		KLB BOOK I *Page 87*	
	3,4	Energy requirements in humans.	State and explain factors affecting food intake.	Probing questions and brief discussion.		KLB BOOK I *Pages 88-89*	
		END OF TERM THREE EXAMS					