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| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| Group of organisms according to their similarities and differences. | Classify organisms in their respective kingdoms phylum/division and class. | **JANUARY** | 3 | C  L  A  S  S  I  F  I  C  A  T  I  O  N | Kingdom plantae. Division Canifero Phyla | 4 | * Grouping   students to observe the collected plants.   * Leading of a class   discussion on general and distinctive features of the division canifero phyla.   * Leading a class   discussion on the structure of pine.   * Leading a class   discussion on the advantages and disadvantages of plants under division coniferophyla. | * Observing the   collected and displayed plants and record the observable features.   * Discussing   general and distinctive features of the division.   * Discussing the   structure of pine drawing and labelling it.   * Outlining   advantages and disadvantages of plants under division coniferophyla. | * A variety   of conifers   * Pictures of   conifers e.g. Pine, cypress, spruce, cedar.   * Cones   (fresh or preserved) | Biology Form 3 & 4 (TIE) & Fundamentals of Biology Book 3 J.M Mwaniki & G.G Geoffrey & Human Biology Zambek Publiehers. |  |  |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| Group of organisms according to their similarities and differences. | Classify organisms in their respective kingdoms phylum/division and class. | **JANUARY** | **4** | CLASSIFICATION OF LIVING THINGS. | **DIVISION ANGIOSPERMOPHYTA (Flowering Plants)** |  | * Grouping   students and guiding them on observing variety of flowering plants.   * Leading a class   discussion on general and declarative features of division Angiospermophyta.   * Leading a class   discussion on the structure of representative of representative plants of class Monocotyledon and Dicotyledon. | * Students in   their groups to observe a variety of flowering plants and record their observable features.   * Discussing the   general and distinctive features of division Angiospermophyta.   * Discussing the   structure of representative plants of the two classes.   * Drew and label   the representative plants under each class. | * Flowers   from dicots and monocots.   * Fruits and   seeds of flowering plants.   * A variety   of flowering plants. | -//- | Students should be able to explain general and distinctive features of division Angiospermophyta. |  |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| -do- | -do- | JANUARY | 4 | CLASSIFICATION OF LIVING THINGS. | DIVISION ANGIOSPERMOPHYTA (Flowering Plants) | 4 | Grouping students and guiding them in observing variety of flowering plants.  -Leading a class discussion on:-  General and distinctive features of division Angiospermophyta.  The classes and general and distinctive features of class Monocotyledoneae and Dicotyledoneae.  The structure of representative plants of class Monocotyledoneae and Dicotyledoneae. | Students in their groups to observe a variety of flowering plants and record the observed features.  Discussing the general and distinactive features of division Angiospermophyta.  Discussing the general and distinactive features of the class of division  Angiospermophyta.  Discussing the structure of representative plants of the two classes and then draw and label the representative plants. | * Flowers   from dicots and monocots   * Fruits and   seeds of flowering plants.   * A variety of   flowering plants.   * A variety of   monocotyledonous and dicotyledonous plants.  Grains (maize, wheat, rice, millet)  Mature young bean and maize plants.  Charts showing characteristics of classes of the division | -//- | -The students should be able to Explain general and distinctive features of division Angiospermophyta.  Outline the distinctive features of each class of the division Angiospermophyta. |  |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
|  |  |  |  |  |  |  | * Organizing a   brainstorming session on advantages and disadvantages of kingdom Plantae division Angiospermophyta.   * To clarify students   responses. | * Brainstorm on   the advantages and disadvantage of Kingdom Plantae, division Angiospermophyta. | * A charts on   the representative plants under the division Angiospermophyta. | -//- | Students should be able to explain advantages and disadvantages Angiospermophyta. |  |
| Demonstrate approximate use of biological knowledge, concepts, principles and skills in evaluating the roles of various physiological processes in plants and animals. | Acquire basic knowledge, principles, concepts and skills in evaluating the roles of physiological processes in plants and animals. | **FEBRUARY** | 1 | M  O  V  E  M  E  N  T | Concept of Movement and Locomotion. | 4 | * Guiding   students to brainstorm on the meaning of movement and locomotion.   * Leading a class   discussion on differences between the two concepts.   * Organizing   students in groups to discuss the importance of movement in plants and animals.   * Design activity for   students to demonstrate movement and locomotion. | * Brainstorming   on meaning of movement and locomotion.   * Discuss the   differences between movement and locomotion.   * In groups to   discuss the importance of movement in plants and animals.   * In groups, to   perform various actions depicting movement and locomotion. | * Variety of   Organisms such as insects fish and mouse.   * Charts on   locomotion/movement of different organisms.   * Pictures/   drawings of various organisms depicting movement and locomotion. | -//- | Giving quiz to observe how accurate can the student explain the concepts of movement and locomotion.  Observing of the student can be able to demonstrate movement locomotion actions. |  |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| -do- | -do- | FEBRUARYY | 2 |  |  |  | Guiding students through questions and answers to give differences between movement and locomotion. | Pointing the differences between movement and locomotion. | Variety of organisms such as insects, fish and mouse. | -//- | Give out quick to check if students can accurately explain the concept of movement and locomotion. |  |
| M  O  V  E  M  E  N  T | Movement of the human body.  The Human skeletal system. | 2 | * Guiding students in   groups in examining the model of human skeleton.   * Leading a class   discussion on the structure of the human skeleton and its major components.   * Guiding students in   groups to discuss the adaptation of the major components of the human skeleton | * In groups,   examining the picture /model of human skeleton and identify its major parts.   * Discussing   structure of the human skeleton and draw a well labelled diagram of it.   * In groups   discuss the adaptations of the major components of the human skeleton. | * Model of   Human skeleton.   * Diagram/   drawing of the major components of human skeleton. | -//- |  |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| -do- | FEBRUARY | 2 & 3 | M  O  V  E  M  E  N  T | Muscles and Movement | 6 |  | * Organizing a   brainstorming session on machining of muscles   * Leading a class   discussion on types of muscles. | * Brainstorm on   meaning of muscles.   * Observing in   groups charts/models pictures of different muscles and identity their differences. | * Charts/diagrams/picture of different types of muscles. | -//- | Administer quiz to see the ability of a student to explain how muscles facilitate movement.  To check if the student is able to describe the structure of muscles by asking question. |  |
| * Design an activity   for students to demonstrate the role of muscles in movement.   * To lead a class   discussion on the structure of muscles. | * In pairs to   perform various actions depicting the role of muscles in movement.   * In groups to   observe/diagrams of muscles and discuss its structure.   * To draw and * label the structure of biceps, during bending and stretching of the arm. | * Charts/diagrams/photograph of muscles | -//-  -//- |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| do- | -do- | FEBRUARY | 4 |  | 2.3 Movement in plants. | 4 | * To lead a class   discussion on the adaptations of different types of muscles to their roles.   * To guide students   in groups through questions and answer to discuss on causes, effects and preventive measures of muscles craps. | * In groups to   observe pictures/diagrams of different types of muscles and discuss their adaptations.   * In groups to   discuss causes, effects and preventive measures of muscles cramps | * Models/pictures/diagrams of muscles. | -//- | To check if a student is able to explain causes, effects and preventive measures of muscle cramps by giving a short test. |  |
| * To guide students   in observing plants showing movement in plants.   * To organize   students in groups and their discuss movement exhibited by plants and their importance.   * To make   clarification and conclusion on meaning and importance of movement exhibited by plants.   * Leading a class   discussion on the types of movement exhibited by plants. | * .observing   polled plants showing movement and record their findings.   * In groups to   discuss movement exhibited by plants and their importance and then present.   * To discuss in groups on the types of movement exhibited by plants. | * Photograph   diagrams and charts showing movement in plants.   * Plants   showing movement of curvature.   * A variety of plants showing movement exhibited by plants. | -//- | To check if a students is able to explain the concept of movement by giving quiz.   * Observing   students in groups investigating movement in plants. |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
|  |  |  |  |  |  |  | * Provide guidelines   to students for performing experiments to investigate movement exhibited by plants.   * To lead a class   discussion on findings, making clarifications and conclusion. | * Students in   groups by using guidelines to perform experiments to investigate movement exhibited by plants and record their findings.   * To presents their findings. | * Potted plants. | -//- | -//- |  |
| **MID TERM TESTS AND MIDTERM BREAK** | | | | | | | | | | | | |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| Demonstrate appropriate use of biological knowledge concepts, principles and skills in evaluating the role of various physiological processes in animals. | Acquire basic knowledge, principles, concepts, and skills in evaluating the role of physiological processes in animals. | MARCH | 3 | C  O  O  R  D  I  N  A  T  I  O  N | Concept of coordination | 4 | * To guide students in group to discuss meaning and importance of coordination. * To make clarification and conclusion. * To guide students in observing charts/diagrams/pictures showing main components of nervous coordination. * To lead a class discussion on the ways in which coordination is brought about. | * To discuss in their groups meaning and importance of coordination and present their tasks. * To observe   charts/diagrams/pictures showing main components of nervous coordination and discuss the role of each components.   * In groups to   discuss the ways in which coordination is brought. | * Hot objects * Sharp object * Live specimen of insects and small mammals. * Game or puzzle charts on nervous coordination process. | -//-  -//- | To check if a student’s is able to:-   * Explain the concept of coordination in organisms. * Outline ways in which coordination is brought about by giving test. |  |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| -do- | -do- | MARCH | 4 |  | Nervous coordination in Human Neurones. | 2 | * To lead a class   discussion on the structures of motors, sensory and neurones.   * Organizing   students in groups and ask them to discuss on the roles of motor, sensory and relay neurones.   * To summarize   students responses, make general comments and necessary corrections. | * To discuss in   groups in structure of motor, sensory and relay neurons.   * To discuss on   the role of motor, sensory and relay neurons and present their tasks. | * Models/pict   ures/photographs of neurons   * Prepared   slides of neurones   * Microscope * A chart   showing summary of the roles of motor, sensory and relay neurones. | -//- | * To check if the student can:- * Describe the structure of motors, sensory and relay neurones.   Explain the role of motor sensory and relay neurones. |  |
|  |  |  |  |  | Central Nervous System (CNS) | 2 | * To organize a brain   storming session on meaning of central nervous system (CNS).   * To summarize   students responses and give general comments and conclusion.   * To guide students   in groups to identify the components of the central nervous system and discuss their roles. | * Brainstorm on meaning of CNS * In group to   identify the components of the CNS and discuss their roles. | * Charts of   the Central Nervous System.   * Diagrams /   models of brain and spinal cord. | -//- | * To check if the   students able to give meaning of CNS, identify, components of the CNS and their functions by giving quiz. |  |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
|  |  |  |  |  |  |  | * To guide students in groups to observe models/diagrams of the spinal cord and brain and discuss their structure. | * To observe models/diagrams of brain and spinal cord, discuss their structures. * Draw and label the structure of brain and spinal cord. | * Models of brain and spinal cord. | -//- |  |  |
| -do- | -do- | APRIL | 1 | C  O  O  R  D  I  N  A  T  I  O  N | Peripheral Nervous System (PNS) | 2 | * Organizing a   brainstorming session on meaning of PNS.   * To summarize,   make corrections and conclusion.   * To lead a class   discussion on components of PNS | * Give meaning * Discuss the components of PNS in groups. | * Photograph / charts showing the structure of PNS | -//- | Asking oral questions to check if the student is able to give meaning of PNS & identify its components. |
| Reflex Action |  | * To design   Activities for students to demonstrate the reflex action.   * To lead students   to discuss the meaning of reflex action. | * Perform   Activities showing reflex actions.   * To discuss   meaning of reflex action. | * Hot objects * Live insects or small mammals. * Toys (snake, scorpion) | -//- | To check of the students is able to given meaning of reflex action by asking questions. |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| -do- | -do- | **A P R I L** | 1  & 2 |  | Reflex Action | 6 | * To display the charts/diagrams showing the neurotic pathway of a reflex action. * To lead a class discussion pathway of a reflex action. * To design activities for students to demonstrate simple reflex action and conditional actions. * To lead a class discussion on the differences between simple reflex action and conditioned reflex action. | * Observe and identify the components of neurotic pathway of reflex action. * To discuss the neurotic pathway of a reflex action. * In groups to demonstrate simple and conditional reflex actions and record their findings. * To discuss the differences between simple and conditional reflex actions. | * Charts/diagrams showing neurotic pathway of a reflex action. * Charts/drawings of simple conditional reflex actions. * Video/radio tapes showing simple and conditional reflex actions. | -//- |  |  |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| -do- | -do- | **APRIL** | 3  &  4 | C  O  O  R  D  I  N  A  T  I  O  N | Sense Organs | 6 | * To guide students in groups to observe models/pictures/diagrams and brainstorm on meaning of sense organ, identify them and their related position. * Lead students to discuss in groups structure of each sense organ. * Leading a class discussion on the role of each sense organ and its adaptive features. | * Brainstorm on   of sense organ, identify them and state their relative position.   * Discuss in   groups structure of sense organ and draw and label the human ear, eye, nose tongue and s. Of the skin.   * Discussing role   of each sense organ and its adaptive features. | * Charts of different sense organs. * Charts/models/photographs of different sense organs. | -//- | Check if a students is able to:-   * Explain meaning of sense organ. * Identify types of sense organs. * Describe structure of each sense organ . * State functions of sense organ by giving test. |  |
|  |  | Drug and drug abuse in Relation to Nevours Coordination. |  | * To lead students to discuss in groups meaning of drug and drug abuse in relation to nervous coordination. | * In groups to discuss meaning of drug and drug abuse in relation to nervous coordination. | * Video/film on effect of drug and substance abuse * Simple drugs. | -//- |  |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| . | Apply appropriate skills in managing problems related drug/substance abuse | **MAY & APRIL** | 4  &  1 |  | Drugs and Drug abuse in relation to nervous coordination. | 6 | * To invite heath   practitioner officer to talk on drug addiction, its causes and effects.   * To guide students   to clarify major issues and make conclusion.   * Organize students   in groups and discuss on preventive and control measures of drug abuse.   * Use students   correspondence and make clarification. | * To summarize   major points from the guest speaker presentation.   * Prepare project   on cases of drug addiction in their surrounding community.   * Discuss in   groups on preventive and control measures of drug abuse. | * Brounchure and fliers on causes and effects of drug abuse. * Posters of drug addicts or users. | -//- |  |  |
| Hormonal Coordination |  | * To lead a class   discussion on the location of the endocrine glands in the mammalian body and types of hormones produced by each gland | * To draw the   diagram to show location of endocrine glands in human body. | * Charts/diagr   ams of endocrine glands and hormones produced by each gland. | -//- |  |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| Demonstrate appropriate use of biological knowledge, concepts, principles and skills in evaluating the role of various physiological activities in plants and animals. | Acquire basic knowledge principles, concepts and skills in evaluating the role of physiological processes in plants and animals. | **MAY** | 1  &  2  &  3 | C  O  O  R  D  I  N  A  T  I  O  N | .Hormonal Endocrine Coordination | 6 | * Land a class   discussion on the:   * Difference   between endocrine and exocrine glands.   * Role of each   hormone in the mammalian body.   * Disorders of   hormonal coordination due to hyper and hypo-secretion on insulin, GH, ADH and throxine. | * Discuss the   difference between endocrine and exocrine glands.   * Role of each   hormone in mammalian body   * Disorders of   hormonal coordination due to hyper- and hypo- secretion of mentioned hormones. | * Pictures/photographs of disorders of hormal coordination. Eg. Goitre gigantism and dwarfisim. | -//- |  |  |
| Coordination in plants. Concepts of  Topic Nastic responses |  | * Guide students   to observe potted plants in all round light and unilateral light and record their observations.   * To guide students   to give meaning of topic and nastic responses through questions and answers | * Observe plants   and records observations.   * Give meaning of   topic and nastic Reponses. | * Potted plants. * Mimos plant * Charts/photographs or pictures of topic responses. | -//- |  |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
|  |  | MAY | 3 | C  O  O  R  D  I  N  A  T  I  O  N | Coordination in plants |  | * Provide students   with guidelines for practical activity on the effects of topic and nastic plants.   * To guide students   in discussing on the importance of hydro-geo-photo and chemo- tropisms in plants.   * To lead   discussion, make general and conclusion on the significance of tropisms and nastic responses in plants. | * Using guidelines   to carry out experiments to investigate the effects of tropic and nastic in plants and record their findings.   * To discuss on   groups the importance of hydro –geo-photo and chemo-tropism in plants.   * To outline   significance of tropism in plants. | * Potted plants subjects to all round –light and unidirectional light. * Charts to show examples of tropic responses. * Mimosa plant. | Biology Form  3 & 4  (TIE) 2007 |  |  |
| 4 | E  X  C  R  E  T  I  O  N |  |  | * Brainstorm * Organize a brainstorming session on meaning of excretion * To lead students to name excretory. | * To brainstorm on meaning of excretion. | * Models of kidney. * Diagram / charts of excretory system. |  |  |
| **TERMINAL EXAMS - LONG VACATION** | | | | | | | | | | | | |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| Demonstrate appropriate use of biological knowledge, concepts, principles and skills in evaluating the roles of various processes in plants and animals. | Acquire basic knowledge principles, concepts and skills in evaluating the role of physiological processes in plants and animals. | JULY | 3 | E X C R E T I O N | Excretion In Human | 4 | * To lead students to discuss on the types on the types of excretory organs in human. * To dissect any small mammal and display the urinary system. * To lead students to discuss the structure of the urinary system and its adaptive features. * To organize students in groups and brainstorm on the process of urine formation. * To make clarification. | * To discuss the types of excretory organs in human. * To observe the urinary system and identify the structures. * To discuss and draw the structure of human urinary system. * To discuss the process of urine formation in groups. | * Dissecting kit. * Chloroform * Cotton * Models/charts pictures showing human urinary system. |  |  |  |
|  |  |  |  |  |  |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| -do- | -do- |  | 4 | E    X    C    R    E    T    I    O    N | Complication and disorder of excretory sysem. | 4 | * To prepare a case study on common disorders of the excretory system. * To lead students in groups discuss on causes, symptoms, effects and control measures of disorders and complications of the excretory system. | * To discuss on the case study. * In groups to discuss of causes, symptoms, effects and control measures of disorders and complications the excretory system. | * Charts/diagrams of the urinary system and associated disorders and complications. * Charts/models/pictures showing urinary system. | Human biology  Zambak Publishers. |  |  |
| AUGUST | 1 | Excretion in plants. | 4 | * To lead students through question and answers to mention ways by which plants get rid of excretory products and give examples . * To make general comment and conclusion on different types of excretory products eliminated by plants. | * To summarize major points and list down types of excretory products eliminated by plants. | * Sample of plant excretory products such as gum, latex alkaloids. | Biology Form  3 & 4  (TIE) |  |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| -do- | -do- | AUGUST | 2 |  |  |  | * To lead students   in groups to discuss the importance of excretory products of plant. | * To discuss in groups on the importance of excretory products of plants. | * A chart showing various plants and their waste products. |  |  |  |
| R E G U L A T I O N | Concept of Regulation | 2 | * To guide students   in groups to discuss the meaning of regulation and its importance.   * To lead a plenary   discussion and make clarification and conclusion of the concept of regulation and its importance.   * To lead a class   discussion on the types of regulations; temperature regulation, regulation of water and mineral salts in animals. | * To discuss the meaning of regulation and its importance. * To discuss groups on the types of regulation. | * A chart showing the process of regulation in animals. * Charts /pictures /diagrams showing various types of regulation. |  |  |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| -do- | -do- | AUGUST | 2 & 3 | R E G U L A T I O N | Temperature Regulation in Animals. |  | * Guide students in   group to perform experiments to determine the temperature of a frog and a small mammal under different conditions.   * Clear   misconceptions and make conclusion.   * To lead a class   discussion on the temperature regulation in mammals.   * To lead a class   discussion on the structure of the skin in relation to temperature regulation (vasoconstriction and Vasodilation) | * In groups to   determine the temperature of a frog and a small mammal, under different conditions and record their findings.   * Divide the   experimental animals into two groups; ectoderms and endodermis.   * In pairs, carry   out practical exercise on measuring body temperature before and after performing exercise and report that findings.   * To discuss in   groups the body reactions when temperature of the surrounding is lower and when is higher than body temperature.   * Draw an label   section of the skin showing vasoconstriction and vasodilation. | * Toad /Frog * Small   mammal (rat, mouse, rabbit\_   * A clinical thermometer. * A chart   showing a table for recording body temperature.   * Pictures/diagr   ams showing the reaction of the skin under different conditions (hot and cold) | Fundamentals of Biology Book 3  (J.M. Mwanki  (G.G.  Geoffrey) |  |  |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| -do- | -do- | AUGUST | 4 | R  E  G  U  L  A  T  I  O  N | Osmo - regulation in mammals | 4 | * Lead students in   groups to discuss on meaning of osmoregulation and its importance.   * To make   Clarification and conclusion on meaning and importance.   * To guide students   through question and answer to mention factors which may affect the contents of salt and water in the body.   * To guide students   in groups to categorize factors which may salt and water content. | * Discuss the meaning and importance of osmoregulation. * To mention the factors which may affect the contents of salt and water in the body. * Present their task and categorize the factors. | * Charts/   pictures photographs or diagrams showing osmoregultion in mammals.   * Models/   Charts/  pictures showing the structure of a nephron. |  |  |  |
| SEPTEMBER | 1 |  | Blood Sugar regulation in mammals |  | * Lead students to   discuss on how hormones regulate sugar level in the blood (insulin and glucagon.   * To guide   students summarize major ideas and make conclusion on the mechanism of regulation sugar level. | * To discuss in groups how hormones regulate sugar level in the blood and present their task. | * Pictures /charts photographs showing mechanisms of regulation sugar level in the blood. |  |  |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| -do- | -do- | SEPTEMBER | 2 | R E G U L A T I O N | Blood sugar regulation | 4 | * To assign tasks to   students in group to read literatures and outlines the causes, symptoms and effects of high and low sugar level in the blood.   * To guide students   to summarize major ideas and make conclusion on the mechanisms of regulating sugar level in the blood. | * Students to read   on literature and outlines the causes, symptoms and effects of high and low sugar level in the blood and present their tasks. |  |  |  |  |
|  | R E P R O D U C T I O N | Concept of reproduction. |  |  |  |  |  |  |
| COMPETENCE | GENERAL OBJECTIVES | MONTH | WEEK | MAIN TOPIC | SUB-TOPIC | PERIODS | TEACHING ACTIVITIES | LEARNING ACTIVITIES | T/L MATERIAS | REFERENCES | ASSESSMENT | REMARKS |
| Demonstrate, appropriate use of biological knowledge, concepts, principles and skills in evaluating the role of various physiological processes in plants and animals. | Acquire basic knowledge, principle and skills in evaluating the role of physiological processes in plants and animals. | SEPTEMBER | 3 | R E P R O D U C T I O N | Concept of reproduction | 2 | * To guide students   to discuss the meaning and importance of reproduction.   * To summarize   students responses and make necessary clarification.   * To observe a   variety of organism which reproduce by seeds or vegetable.   * To lead a plenary   discussion, make general comments and conclusion. | * To discuss the   meaning and importance of reproduction.   * To observe a   variety of organisms displayed and discuss in groups the ways in which the plants reproduce by asexual or sexual reproduction.   * To discuss in   groups the difference between asexual and sexual reproduction and present their group task. | * Flip charts * V.I.P.P cards carrying key message on reproduction * Variety of organism. | Biology Forms 3 & 4  (TIE)  2007 |  |  |
| Meiosis and Reproduction |  | * To guide students   to brainstorm the meaning of meiosis using charts/photograph and models showing stages of meiosis.   * To summarize   students responses and make conclusion.   * To lead a class   discussion on the significance of meiosis in relation to reproduction. | * To brainstorm the   meaning of meiosis.   * To discuss on the   significance of meiosis in relation to reproduction. | * Charts/photographs showing stages of meiosis. * Models showing stages of meiosis. | Fundamentals of Biology Book 3. |  |  |
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| -do- | -do- | S E P T E M E B E R | 4 | R E P R O D U C T I O N |  | 2 | * To display charts/photographs/diagrams showing the events taking place in each stage of meiosis process. * To lead a plenary discussion and make reflection on students responses to summarize major idea. | * To observe the events taking place in meiosis and outline them. * Present for class discuss. | * Prepare microscope slide on stages of meiosis * Microscope * Charts/   photographs models showing stages of meiosis. | Human Biology Zambak Publishers. |  |  |
| Reproductive in flowering plants.  The structure of the flower. | 2 | * To provide   guidelines to students for collecting various types of flowers.   * To lead a plenary   discussion and make clarification and conclusion on the structure of a flower.   * Lead students to   identify and discuss reproductive parts of flowers. | * To observe the   collected flowers and identify different parts of the flower and describe their structures.   * To draw a well labelled diagram of the named flower. * To identify and discuss reproductive parts of a flower. | * Variety of flowers. * Charts/models/photographs of flowers. | -//- |  |
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| -do- | -do- | O C T O B E R | 3 | R E P R O D U C T I O N | Reproduction in mammals | 4 | * To guide students   to identify male and female reproductive organs from the dissected mice.   * To lead a class   discussion and make correction and clarification on the structures of male and female reproductive systems. | * In groups to   identify in male and female reproductive organs from the dissected mice.   * To discuss on the   structure of male and female reproductive systems and draw the diagrams. | * Mouse/any other small mammal * Dissecting kit. * Tray / dissecting board * Chloroform * Cotton wool * Water. | -//- |  |  |
| 4 | Gamete formation and fertilization |  | * To lead a plenary   discussion on gamete formation, liberation and meaning of gamete.   * To guide students   to identify the phases of menstrual cycle and events that take place in each phase.   * To guide students   to discuss the process of fertilization pregnancy and child birth. | * To discuss in   groups the process of gamete formation in mammals and liberation.   * To identify the   phase of menstrual cycle and events that take place.   * Discuss on the   process of ovulation and hormones involved in the process.   * To discuss in   groups the process of fertilization pregnancy and child birth. | * Pictures   showing formational liberation of gametes.   * Charts on   fertilization process. | -//- |  |
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| Use appropriate skills to solve various health related problems. | Take appropriate precaution and measures against problems. Related to reproductive processes in plants and animals. | NOVEMBER | 1  1  &  2 | R E P R O DU C T I O N | Multiple Pregnancies. | 2 | * To lead as in   groups to discuss factors affecting fertilization.   * To lead students   to discuss on meaning and importance of artificial insemination.   * To guide students   to summarize the major responses and make general comments. | * To discuss in   groups the factors affecting fertilization and present their tasks.   * Discuss on meaning and importance of artificial insemination, and present their tasks. | * Charts/drawing depicting artificial insemination. | -//- |  |  |
| Disorders of Reproductive system. | 4 | * To lead students   to discuss on meaning and causes of multiple pregnancies.   * To lead a class   discussion and summarize the major points on differences between identical and fraternal twins.   * Lead students in   groups and discuss on types of disorders of the human reproductive system. | * To discuss of   meaning and causes of multiple pregnancies.   * Discuss on   differences between identical and fraternal twins.   * To discuss in   group different types of disorders of the human reproductive system. | * Charts/   pictures on multiple pregnancies.   * Charts   /diagrams or pictures or pictures showing identical and fraternal twins   * Document   on disorders of the human reproductive system.. | -//- |  |
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| -do- | Take appropriate precautions and measures against problems related to  reproductive processes in animals | NOVEMBER | 2  &  3 |  |  |  | * Guiding students   in groups with questions to discuss on causes and effects of the reproductive system disorders.   * To lead a class   discussion on the possible remedies of reproductive system disorders. | * To discuss on   causes and effects of the reproductive system disorders.   * To discuss   possible remedies of the reproductive system disorders. | * Documents   on the disorders of the human reproductive system. | --//- |  |  |
| Complications of the Reproductive system. | 6 | * To guide students   to brainstorm on the types of complications of the reproductive systems.   * To summarize the   major points on the meaning of aborting, still birth, miscarriage and ectopic pregnancy.   * Lead students to   discuss on causes and effects of complications of reproductive system.   * To make   clarification and conclusion.   * To guide students   to discuss in groups ways of minimizing complications and disorders of the reproductive system. | * To brainstorm on the types of complications of the reproductive system. * To discuss on causes , effects of complications of reproductive system. * To discuss ways of minimizing complications and disorders of the reproductive system. | * Video, tapes * Text on case studies on complications of the reproductive system. * Video tapes/charts pictures photographs showing complications of the female reproductive system. | -//- |  |
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| -do- | -do- | NOVEMBERER | 4 | R E P R O D U C T I O N | Sexuality and sexual Health and Responsible sexual behaviour. | 4 | * Guide students to   discuss meaning of sexuality sexual health and sexual behaviour.   * Guide students in   groups to discuss on factors influencing sexual behaviour in different groups of people.   * Guide students to   discuss responsible and irresponsible sexual behaviour and their impacts on one self, family and community.   * To guide students   to summarize outline ways of eradication irresponsible sexual behaviour in the family, school and community.   * To lead plenary   discussion and make clarifications on appropriate life skills required to cope with adolescent sexuality and sexual behaviour such as self esteem, problems solving and decision making. | * Discuss on   meaning of the sexuality, sexual health and sexual behaviour.   * Discuss in   groups on factors influencing sexual behaviour in different groups of people.   * To discuss the   responsible and irresponsible sexual behaviour and their impacts.   * Tabulate   differences between responsible and irresponsible sexual behaviour.   * Discuss the   ways of eradicating irresponsible sexual behaviour.   * Discuss on   appropriate life skills required to cope with adolescent sexuality and sexual behaviour. | * Pictures, charts and photographs, video tapes depicting cases of sexuality and sexual behaviours. * Radio/video tapes pictures/ charts showing people with different sexual behaviours | -//-  -//-  -//- |  |  |
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|  |  | NOVEMBER | 4 |  | Family planning and contraception | 4 | * To lead student to   discuss on the concepts of family planning and contraception.   * Organize students   in groups and discuss of various family planning and contraception methods their advantages and disadvantages   * Importance of   family planning and contraception. | * To discuss on   the concepts of family planning and contraception.   * To discuss of   various family planning methods and contraception, their advantages and disadvantages.   * Importance of   family planning contraception. | * Various   family planning devices.   * Charts/   pictures photographs of family planning devices. | -//- |  |  |
| Maternal and child care. |  | * Lead students to discuss on maternal and child care. * Assign students to investigate socio-cultural factors which affect maternal and child care. * To lead a class discussion on the ways of providing appropriate maternal and child care for PLWHA | * To discuss importance of maternal and child care. * Present their investigations for class discussion. * To discuss on ways of providing appropriate maternal and child care for PLWHA | * Charts/ pictures and photographs of women and children living with HIV/AIDS | -//- |  |