**BIOLOGY SCHEMES OF WORK FORM 2**

**TERM 2**

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| **WK** | **LSN** | **TOPIC** | **SUB-TOPIC** | **OBJECTIVES** | **T/L ACTIVITIES** | **T/L AIDS** | **REFERENCE** | **REMARKS** |
| 1 | **Opening and Revision** |
| 2 | 1 | TRANSPORT IN PLANTS AND ANIMALS  | Immune responses.  | By the end of the lesson, the learner should be able to: To differentiate between natural and acquired immunity.To explain the role of vaccines in immune responses. | Detailed explanations and open discussion.To explain the role of vaccination / immunization.Open discussion on HIV / AIDS. | Chart- Diseases that children are immunized against; Resource person.  | K.L.B. BOOK 2Pages 40 - 41  |  |
| 2 | TRANSPORT IN PLANTS AND ANIMALS  | Allergic reactions.  | By the end of the lesson, the learner should be able to: To define an allergic reaction.To identify ways in which allergy presents itself.To explain cause of allergic reactions. | Q/A: Manifestations of allergy.Exposition and brief explanations.  | text book  | K.L.B. BOOK 2Page 43  |  |
| 3 | TRANSPORT IN PLANTS AND ANIMALS  | Organ transplant.  | By the end of the lesson, the learner should be able to: To identify organs that are normally transplanted.  | Q/A: Organs transplanted.Superficial discussion.Topic review.  | text book  | K.L.B. BOOK 2Page 43  |  |
| 4 | GASEOUS EXCHANGE  | Introduction. Gaseous exchange in plants.  | By the end of the lesson, the learner should be able to: To explain importance of gaseous exchange.To describe gaseous exchange in plants.  | DiscussionExplanationsQ/A: Products of respiration.Detailed discussion. | text book  | K.L.B. BOOK 2P. 48  |  |
| 3 | 1 | GASEOUS EXCHANGE  | Release of CO2 by plants.  | By the end of the lesson, the learner should be able to: To describe an experiment to show release of CO2 by plants.  | Class experiments including control experiments.Explain the observations made. | Bicarbonate indicator, boiling tubes, Aluminum foil. | K.L.B. BOOK 2P. 49  |  |
| 2 | GASEOUS EXCHANGE  | Release of CO2 by plants.  | By the end of the lesson, the learner should be able to: To describe an experiment to show release of CO2 by plants.  | Class experiments including control experiments.Explain the observations made. | Bicarbonate indicator, boiling tubes, Aluminum foil. | K.L.B. BOOK 2P. 49  |  |
| 3 | GASEOUS EXCHANGE  | Release of O2 by plants.  | By the end of the lesson, the learner should be able to: To describe an experiment to show release of O2 by plants. | Teacher demonstration: Test for the gas evolved.Discuss observations.  | Gas jar,Glass funnel,Water plant,Beaker.  | K.L.B. BOOK 2P. 49  |  |
| 4 | GASEOUS EXCHANGE  | Stomata.  | By the end of the lesson, the learner should be able to: To describe the structure and explain the functions of stomata. | Detailed discussion.Drawing diagrams.  | text book  | K.L.B. BOOK 2P. 51  |  |
| 4 | 1 | GASEOUS EXCHANGE  | Opening & closing of stomata.Stomata and habitats of plants.  | By the end of the lesson, the learner should be able to: To describe and explain the mechanism of opening & closing of stomata.To relate plant habitats and the no. of stomata.To explain the variation between number of stomata on the upper and lower face.  | Detailed discussion.Observe number of stomata of prepared slides of hydrophytes and xerophytes.Discuss the observations.  | text bookPrepared slides of hydrophytes and xerophytes.  | K.L.B. BOOK 2P. 51  |  |
| 2 | GASEOUS EXCHANGE  | Lenticels.  | By the end of the lesson, the learner should be able to: To describe and explain the mechanism of lenticels. | Detailed discussion.  | text book  | K.L.B. BOOK 2P. 52  |  |
| 3 | GASEOUS EXCHANGE  | Respiratory surfaces in animals.  | By the end of the lesson, the learner should be able to: To define a respiratory surface.To state characteristics of respiratory surfaces.To identify the environment or medium of operation of respiratory surfaces. | Teacher exposes meaning of a respiratory surface.Discuss at length, giving examples of organisms that have a given respiratory surface.  | text book  | K.L.B. BOOK 2P. 53  |  |
| 4 | GASEOUS EXCHANGE  | Gaseous exchange in protozoa.  | By the end of the lesson, the learner should be able to: To describe the mechanism of gaseous exchange in an amoeba.  | Q/A: Review diffusion, structure of an amoeba.Discuss briefly gaseous exchange in and out of amoeba. | text book  | K.L.B. BOOK 2P. 53  |  |
| 5 | 1 | GASEOUS EXCHANGE  | Gaseous exchange in insects.  | By the end of the lesson, the learner should be able to: To describe the mechanism of gaseous exchange in insects  | Drawing tracheal system of a grasshopper.Discuss at length the structure of the tracheal system.Detailed discussion. | text book  | K.L.B. BOOK 2PP. 53, 54  |  |
| 2 | GASEOUS EXCHANGE  | Breathing in insects.  | By the end of the lesson, the learner should be able to: To describe the breathing mechanism in an insect.  | Observe breathing movements of live specimens of grasshoppers, locusts or cockroaches. | Live specimens of insects,Hand lenses, Boiling tubes.  | K.L.B. BOOK 2P. 56  |  |
| 3 | GASEOUS EXCHANGE  | Breathing in insects.  | By the end of the lesson, the learner should be able to: To describe the breathing mechanism in an insect.  | Observe breathing movements of live specimens of grasshoppers, locusts or cockroaches. | Live specimens of insects,Hand lenses, Boiling tubes.  | K.L.B. BOOK 2P. 56  |  |
| 4 | GASEOUS EXCHANGE  | Number, position and shape of spiracles of insects.Gaseous exchange in a bony fish.  | By the end of the lesson, the learner should be able to: To give an account of the number, position and shape of spiracles of insects.To describe the structure of gills of a bony fish.To explain how a gill is adapted to function as a respiratory surface.To explain the mechanism of gaseous exchange in gills.  | Drawing the abdomen and showing the position and shape of spiracles, and giving reasons thereof.Drawing and labeling a gill of a fish; stating the function of each part; and stating how it is adapted to its functions.Detailed discussion.  | Live specimens of insects.A gill of a fish.  | K.L.B. BOOK 2P. 56  |  |
| 6 | 1 | GASEOUS EXCHANGE  | Gaseous exchange in amphibians.  | By the end of the lesson, the learner should be able to: To explain the mechanism of gaseous exchange in a frog.  | Q/A: Various methods of gaseous exchange in a frog.Discuss gaseous exchange through the mouth, lungs and skin of a frog. | text book  | K.L.B. BOOK 2P. 58  |  |
| 2 | GASEOUS EXCHANGE  | Gaseous exchange in mammals.  | By the end of the lesson, the learner should be able to: To list down parts of the tracheal system in man.To describe the function of the parts of a system respiratory. | Discuss at length man?s respiratory system.  | Wall chart- Respiratory system in man.  | K.L.B. BOOK 2P. 59  |  |
| 3 | GASEOUS EXCHANGE  | The structure of the lungs.  | By the end of the lesson, the learner should be able to: To explain adaptations of the lungs to their functions.  | Drawing labeled diagrams coupled with explanations.  | Wall charts- Structure of lungs. | K.L.B. BOOK 2P. 60-1  |  |
| 4 | GASEOUS EXCHANGE  | Inhalation.Exhalation.  | By the end of the lesson, the learner should be able to: To describe the process of inhalation in man.To describe the process of exhalation in man.  | Showing movements of ribs during inhalation.Explain the inhalation mechanism.Showing movements of ribs during exhalation.Explain the exhalation mechanism.  | Chart / model of a rib cage.  | K.L.B. BOOK 2PP. 61-62  |  |
| 7 | 1 | GASEOUS EXCHANGE  | Thoracic cavity model.  | By the end of the lesson, the learner should be able to: To identify similarities between a model thoracic cavity and an actual thoracic cavity.  | Teacher presents a model thoracic cavity.Q/A: Comparing parts of the model cavity and the actual rib cage. | Thoracic cavity model.  | K.L.B. BOOK 2PP. 61-63  |  |
| 2 | GASEOUS EXCHANGE  | Gaseous exchange in an alveolus.  | By the end of the lesson, the learner should be able to: To describe gaseous exchange in an alveolus.To explain regulation of breathing in man. | Discussion and explanations.  | text book  | K.L.B. BOOK 2P. 64  |  |
| 3 | GASEOUS EXCHANGE  | Rate of breathing in man.  | By the end of the lesson, the learner should be able to: To state and explain briefly factors affecting the rate of inhalation / exhalation processes. | Discussion and explanations.  | text book  | K.L.B. BOOK 2P. 63  |  |
| 3-4 | GASEOUS EXCHANGE  | Rate of breathing in man.  | By the end of the lesson, the learner should be able to: To state and explain briefly factors affecting the rate of inhalation / exhalation processes. | Discussion and explanations.  | text book  | K.L.B. BOOK 2P. 63  |  |
| 8 | **Mid Term Exams and Break** |
| 9 | 1 | GASEOUS EXCHANGE  | Intercostal muscles.  | By the end of the lesson, the learner should be able to: To explain the function of intercostal muscles during the breathing system. | Detailed discussion.Counting number of inhalations before and after an exercise blow. | Lime water, rib cage model.  | K.L.B. BOOK 2P. 66  |  |
| 2 | GASEOUS EXCHANGE  | Inhaled and exhaled air.  | By the end of the lesson, the learner should be able to: To test for CO2 in the air we inhale/ exhale.  | Observe colour changes of lime water, and make deductions.Brief discussion.  | Lime water.  | K.L.B. BOOK 2P. 67  |  |
| 3 | GASEOUS EXCHANGE  | Diseases of the respiratory system.  | By the end of the lesson, the learner should be able to: To state the causes, symptoms and prevention of respiratory diseases.  | Discuss cause, symptoms and prevention of whooping cough TB, bronchitis, etc.  | Resource person.  | K.L.B. BOOK 2PP. 67-70  |  |
| 4 | RESPIRATION  | Introduction ? Definition and importance of respiration.  | By the end of the lesson, the learner should be able to: By the end of the lesson, the learner should be able:To define respiration.To explain significance of respiration.  | Q/A: Definition Brief discussion of significance of respiration.  | text book  | K.L.B. BK 2PP. 73-74  |  |
| 10 | 1 | RESPIRATION  | Burning food.  | By the end of the lesson, the learner should be able to: To describe an experiment investigating the gas given off when food is burnt.  | Teacher demonstration: Burning a food sample.Testing for the gas evolved during combustion.  | text book  | K.L.B. BK 2PP. 73-74  |  |
| 2 | RESPIRATION  | The mitochondrion.  | By the end of the lesson, the learner should be able to: To state functions of mitochondrion in respiration.  | Drawing structure of the mitochondrion.Explain function of the mitochondrion.  | Wall charts- The mitochond-rion  | K.L.B. BK 2P. 74  |  |
| 3 | RESPIRATION  | Aerobic respiration.Anaerobic respiration.  | By the end of the lesson, the learner should be able to: To explain phases of aerobic respiration. To state difference between aerobic and anaerobic respiration.To describe anaerobic respiration.  | Detailed discussion.Writing down equations of food breakdown.Observe set up experiments.Detailed discussion punctuated with probing questions:  | text bookGlucose YeastThermometer  | K.L.B. BK 2PP.74-76  |  |
| 4 | RESPIRATION  | Oxygen ?debt?.  | By the end of the lesson, the learner should be able to: To explain the term ?oxygen debt?.To explain the effect of ?oxygen debt? on the amount of energy released during respiration. | Probing questions. Detailed discussion.  | text book  | K.L.B. BK 2P.78  |  |
| 11 | 1 | RESPIRATION  | Applications of anaerobic respiration.  | By the end of the lesson, the learner should be able to: To explain applications of anaerobic respiration.  | Q/A: Products of fermentation process.Listing down various applications of anaerobic respiration. | text book  | K.L.B. BK 2P. 79  |  |
| 2 | RESPIRATION  | Respiratory substrates & respiratory quotient.  | By the end of the lesson, the learner should be able to: To identify respiratory substrates in the body.To define respiratory quotient.To calculate R.Q.  | Brief discussion/ explanations.Exposition of definition and its significance.Problem solving.  | text book  | K.L.B. BK 2P. 79  |  |
| 3 | RESPIRATION  | Rate of respiration.  | By the end of the lesson, the learner should be able to: To state and explain factors affecting rate of respiration.  | Detailed discussion and explanations.  | text book  | K.L.B. BK 2PP. 80-81  |  |
| 4 | EXCRETION AND HOMEOSTASIS  | Introduction- Definition and importance of homeostasis and excretion.  | By the end of the lesson, the learner should be able to: To define homeostasis and excretion.To explain necessity of excretion in plants and animals.  | Q/A: Definitions of digestion, ingestion and egestion, secretion and excretion.Discuss importance of excretion in plants and animals. | text book  | K.L.B. BK 2PP. 83-84  |  |
| 12 | 1 | EXCRETION AND HOMEOSTASIS  | Excretion in plants.  | By the end of the lesson, the learner should be able to: To name plants excretory products. To state uses of excretory products of plants. | Probing questions.Exposition of new terms.Discuss uses and abuses of plant excretory products.  | Some plants excretory products.  | K.L.B. BK 2PP. 83-84  |  |
| 2 | EXCRETION AND HOMEOSTASIS  | Excretion and homeostasis in unicellular organisms.  | By the end of the lesson, the learner should be able to: Describe excretion and homeostasis in an amoeba and a paramecium.  | Q/A: Review diffusion, structure of an amoeba.Discuss excretion and homeostasis in an amoeba and a paramecium. | text book  | K.L.B. BK 2PP. 84-85  |  |
| 3 | EXCRETION AND HOMEOSTASIS  | Excretion and homeostasis in animals.  | By the end of the lesson, the learner should be able to: To identify excretory organs in various animals.  | Exposition and discussion.Observe drawings of various animals showing excretory organs.  | Specimens of platyhelmin-thes, annelida, insects. | K.L.B. BK 2P. 85  |  |
| 3-4 | EXCRETION AND HOMEOSTASIS  | Excretion and homeostasis in animals.  | By the end of the lesson, the learner should be able to: To identify excretory organs in various animals.  | Exposition and discussion.Observe drawings of various animals showing excretory organs.  | Specimens of platyhelmin-thes, annelida, insects. | K.L.B. BK 2P. 85  |  |
| 13-14 | **End Term Exams and closing** |