**BIOLOGY SCHEMES OF WORK FORM 2**

**TERM 2**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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 2 Pages 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 2 Page 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 2 Page 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. | Discussion Explanations  Q/A: Products of respiration. Detailed discussion. | text book | K.L.B. BOOK 2 P. 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 2 P. 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 2 P. 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 2 P. 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 2 P. 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 book Prepared slides of hydrophytes and xerophytes. | K.L.B. BOOK 2 P. 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 2 P. 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 2 P. 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 2 P. 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 2 PP. 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 2 P. 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 2 P. 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 2 P. 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 2 P. 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 2 P. 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 2 P. 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 2 PP. 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 2 PP. 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 2 P. 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 2 P. 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 2 P. 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 2 P. 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 2 P. 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 2 PP. 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 2 PP. 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 2 PP. 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 2 P. 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 book Glucose  Yeast Thermometer | K.L.B. BK 2 PP.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 2 P.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 2 P. 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 2 P. 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 2 PP. 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 2 PP. 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 2 PP. 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 2 PP. 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 2 P. 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 2 P. 85 |  |
| 13-14 | **End Term Exams and closing** | | | | | | | |