**BIOLOGY SCHEMES OF WORK**

**FORM FOUR 2016**

**TERM I**

**REFERENCES:**

1. KLB Secondary Biology Form 4 Students Book KLB BK 4
2. Longman Biology Book 4
3. Longhorn Biology Book 4
4. Principles of Biology Vol 2 (POB VOL 2)

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| **WK** | **LSN** | **TOPIC/S-TOPIC** | **OBJECTIVES** | **L/ACTIVITIES** | **L/T AIDS** | **REFERENCE** | **REMARKS** |
| 1 |  | **SCHOOL OPENING AND PRACTICAL** |  |
| 2 | 1&2 | GeneticsIntroductionTypes of variationCauses of variation | **By the end of the lesson, the learner** **should be able to:-**- Define genetics and variation- Differentiate between continuous and discontinuous variation- Explain causes of variation | DescriptionDemonstration of variationusing studentsExplanationNotes takingQuestion and answer | Chart with a graph ofvariation | KLB BK 4 Pg 1-4Longman BK 4 Pg 1-6Longhorn BK 4 Pg 1-5 |  |
|  | 3&4 | DNA and its structureRole of DNAStructure of theChromosome | **By the end of the lesson, the learner** **should be able to:-**- Describe the structure of the  chromosome- Describe role of DNA | ExplanationDrawingQuestions | Charts with DNAstructure | KLB BK 4 Pg 6Longman BK 4 Pg 6-13Longhorn BK 4 Pg 6-8 |  |
|  | 5 | Replication of DNA | **By the end of the lesson, the learner** **should be able to:-**- Describe the replication of DNA- Explain the arrangement of bases in the DNA molecule | ExplanationDescription Notes takingQuestion and answer | Chart showing DNAReplication | KLB BK 4 Pg 9-10Longman BK 4 Pg 15-16 |  |
| 3 | 1&2 | Chromosome behaviour during celldivision | **By the end of the lesson, the learner** **should be able to:-**Describe chromosome behaviour at each stage of cell division | Modeling of chromosomeduring cell divisionGroup discussion | Brightly coloured thread, pair of scissors,white manilla paper,transparent cello tape | KLB BK 4 Pg 5-6Longman BK 4 Pg 9-10 |  |
|  | 3 | Law of heredityMonohybrid inheritance experiments | **By the end of the lesson, the learner** **should be able to:-**Describe 1st law of heredity fromMendel’s experiments on monohybridinheritance  | Description Notes takingQuestions | Chalkboard illustrationon Mendel’s experiment  | KLB BK 4 Pg 11-12Longman BK 4 Pg 18-20 |  |
|  | 4 | Monohybrid inheritance | **By the end of the lesson, the learner** **should be able to:-**Define monohybrid inheritance using genotype, phenotype, homozygous, heterozygous | ExplanationDescription Notes takingQuestions | Chart with genetic Crosses, chalkboard workings, sample questions | KLB BK 4 Pg 13-14Longman BK 4 Pg 21-22 |  |
|  | 5 | Monohybrid Inheritance | **By the end of the lesson, the learner** **should be able to:-**Describe the monohybrid inheritanceusing genetic crosses & punnet square | ExplanationDescription Notes taking | Sample quiz, workingsof genetic crosses andpunnet squares | KLB BK 4 Pg 14-15Longman BK 4 Pg 21-24 |  |
| 4 | 1&2 | ProbabilityRandom fusion ofGametes | **By the end of the lesson, the learner** **should be able to:-**Work out probability of the outcome ofgamete fusion | Demonstrate probabilityby tossing a coinExplanationDiscussion | Coins, 2 sets of Coloured beads or maize and beans, plastic container | KLB BK 4 Pg 16POB VOL 2 Pg 212 |  |
|  | 3 | Complete and Incomplete dominanceTest and back crossesSelfing experiments | **By the end of the lesson, the learner** **should be able to:-**- Describe complete and incomplete Dominance- Explain back cross and test cross;  selfing experiments | ExplanationNotes takingDiscussion | Genetic cross diagrams | KLB BK 4 Pg 19-20Longman BK 4 Pg 22-23 |  |
|  | 4 | ABO Blood groups and Rhesus factor | **By the end of the lesson, the learner** **should be able to:-**Explain inheritance of ABO bloodgroups and rhesus factor | ExplanationNotes takingDiscussion | Crosses diagrammaticon inheritance of bloodgroups | KLB BK 4 Pg 20-22Longman BK 4 Pg 25-26 |  |
|  | 5 | Sex determination inHumans | **By the end of the lesson, the learner** **should be able to:-**- Define heterogametic and  homogametic natures- Describe sex determination in humans | DiscussionNotes takingGenetic crossing | Genetic crosses on Chalkboard  | KLB BK 4 Pg 23-24Longman BK 4 Pg 26-29 |  |
| 5 | 1&2 | LinkageSex linkage | **By the end of the lesson, the learner** **should be able to:-**- Define gene linkage- Describe sex linked characteristics- Explain effects of crossing over on sex linked genes | DescriptionNotes takingDiscussion | Diagram of Haemophilia InheritancePedigree diagram | KLB BK 4 Pg 25-26Longman BK 4 Pg 29-34 |  |
|  | 3&4 | MutationCausesTypesChromosomal mutations | **By the end of the lesson, the learner** **should be able to:-**- State types of mutations- Explain causes of mutation | DescriptionDrawingNotes takingDiscussion | Diagrams showing Types of chromosomal mutations | KLB BK 4 Pg 28-32Longman BK 4 Pg 35-39 |  |
|  | 5 | Gene mutations or Point mutations | **By the end of the lesson, the learner** **should be able to:-**- Define gene mutation - Describe various types of gene  mutation | DescriptionNotes takingDiscussion | Diagrams of gene mutations | KLB BK 4 Pg 33-34Longman BK 4 Pg 41-44 |  |
| 6 | 1&2 | Disorders due to genemutations | **By the end of the lesson, the learner** **should be able to:-**Name and describe disorders due to gene mutations | Discussion Notes takingDescription | Pedigree diagram showing inheritanceof albinism | KLB BK 4 Pg 35-38Longman BK 4 Pg 45-49 |  |
|  | 3 | Applications of GeneticsPlant and animalbreeding | **By the end of the lesson, the learner** **should be able to:-**Explain application of geneticknowledge in breeding | Discussion Notes takingQuestions | Sample questionsSample of products | KLB BK 4 Pg 39-40Longman BK 4 Pg 50-51 |  |
|  | 4&5 | Blood transfusionGenetic counseling and engineering  | **By the end of the lesson, the learner** **should be able to:-**Explain application in blood transfusion,Counseling and engineering (farming) | Discussion Notes takingQuestions | Sample questions | KLB BK 4 Pg 40-41Longman BK 4 Pg 21-24 |  |
| 7 | 1&2 | Genetic engineering- Medicine- Cloning- Human genome | **By the end of the lesson, the learner** **should be able to:-**Explain how genetics engineering isused in medicine, gene therapy, cloning,human genome | Discussion QuestionsExplanationNotes taking | PhotosNewspaper cuttings etc | KLB BK 4 Pg 42-45Longman BK 4 Pg 55-56 |  |
|  | 3 | Evolution theories of Origin of life | **By the end of the lesson, the learner** **should be able to:-**- Define evolution- Explain theories of origin of life | Discussion QuestionsExplanationNotes taking | The Bible and orKoran  | KLB BK 4 Pg 49-50Longman BK 4 Pg 60-61 |  |
|  | 4&5 | Evolution evidences- Fossil records- Geographical Distribution  | **By the end of the lesson, the learner** **should be able to:-**- State evidences of evolution- Explain fossil records and  geographical distribution | DiscussionNotes takingQ/A | Photograph of fossils &Continents or the globe | KLB BK 4 Pg 51-57Longman BK 4 Pg 62 |  |
| 8 | 1&2 | Comparative Embryology andAnatomy, Serology,Cell biology | **By the end of the lesson, the learner** **should be able to:-**Define and describe comparativeembryology, anatomy and cell biologyas evidence of evolution | DiscussionNotes takingDescription | Photos of analogous and homologous structures and vertebrate embryos | KLB BK 4 Pg 59-65Longman BK 4 Pg 67-70 |  |
|  | 3&4 | Theories of evolutionDarwin and Lamarck’sTheories | **By the end of the lesson, the learner** **should be able to:-**Describe Darwin’s and Lamarck’stheories of evolution | DiscussionNotes takingQ/A | Photographs of Organisms that arebelieved to haveevolved | KLB BK 4 Pg 69-70Longhorn BK 4 Pg 56-60 |  |
|  | 5 | Natural selection inAction- Peppered moth- Resistance to  chemicals | **By the end of the lesson, the learner** **should be able to:-**Explain how natural selection is in action through emergence of new strains of bacteria resistant to antibiotics/insects to insecticides | Discussion ExplanationNotes taking Questions and answers | Flow diagram showingmutation in bacteria | KLB BK 4 Pg 70-72Longhorn BK 4 Pg 58-60 |  |
| 9 | 1&2 | Reception, responseand coordination inplants and animals | **By the end of the lesson, the learner** **should be able to:-**- Define stimulus, response and  irritability- Describe how a stimulus brings about a certain response | DefinitionDiscussionDemonstrationNotes taking | Pairs of students, Photos of plants showing responsesReal plants showingtropism | KLB BK 4 Pg 73-74Longman BK 4 Pg 82-83 |  |
|  | 3&4 | Tactic Responses | **By the end of the lesson, the learner** **should be able to:-**Describe chemotaxis, phototaxis andtheir survival values giving examples | Group discussionObserving termites or ants moving away/towards some chemicals | 2 compation chambersDry sand, bread cramps,termites, naphthalene,wax/plasticine, aluminium, soil | KLB BK 4 Pg 74-75Longhorn BK 4 Pg 70-71 |  |
|  | 5 | Tropic responses- Phototropism | **By the end of the lesson, the learner** **should be able to:-**- Define tropism- Describe phototropism and its survival values- Explain etiolation | DiscussionNotes takingViewing tropisms in nature-fieldspotted plants | Diagrams or photos ofplants respondingReal plants showingphototropism andetiolation  | KLB BK 4 Pg 76Longhorn BK 4 Pg 66-67 |  |
| 10 | 1&2 | HaptotropismGeotropism | **By the end of the lesson, the learner** **should be able to:-**- Define haptotropism and geotropism- Explain their survival values- Predict possible results from a  question on klinostat | Setting up experiment ongeotropismGroup discussion | ClinostatSeedlingBeaker2 clay pots | KLB BK 4 Pg 77Longhorn BK 4 Pg 69-70 |  |
|  | 3 | Other tropic responses- Hydrotropism- Rheotropism- Chemotropism | **By the end of the lesson, the learner** **should be able to:-**- Define the responses- Explain survival values- Give examples practically in life of where they are shown | Notes takingDiscussion | Photos of plantsrespondingDiagrams of germinating pollentube | KLB BK 4 Pg 76Longhorn BK 4 Pg 69 |  |
|  | 4&5 | Nastic responses | **By the end of the lesson, the learner** **should be able to:-**- Define nastism- Describe types of nastic responses and their survival values | DiscussionObservationNotes taking | Photos of plants withnastismMimosa plant | KLB BK 4 Pg 78-79 |  |
| 11 | 1&2 | Production of planthormones and theireffect on tropism- Auxins and  Phototropism | **By the end of the lesson, the learner** **should be able to:-**- State the source of auxins- Explain how light affects movement  of auxins and effect phototropism | Group discussionNotes takingObservingDrawing  | Diagram of tip of plantsTeacher’s notes | KLB BK 4 Pg 80-81Longhorn BK 4 Pg 74 |  |
|  | 3 | Auxins & GeotropismAuxins & haptotropism | **By the end of the lesson, the learner** **should be able to:-**- Explain effects of gravity on  movement of auxins and touch- Explain how auxins distribution Effect geotropism and haptotropism | Group discussionNotes takingObservingDrawing  | Diagram of plantsTeacher’s notesPhotos | KLB BK 4 Pg 82-83Longhorn BK 4 Pg 75 |  |
|  | 4&5 | Apical dominance | **By the end of the lesson, the learner** **should be able to:-**- Explain the role of the terminal bud in apical dominance- State application of apical dominance In agriculture e.g. pruning of tea/coffee | Group discussionNotes takingObserving | Photos and diagramsPlants in a gardenNotes | KLB BK 4 Pg 147POB VOL 2 Pg 302 |  |
| 12 | 1&2 | Practical on responseTactic, tropic response | **By the end of the lesson, the learner** **should be able to:-**State observations and explain practicals on exiolation, klinostat,geotropism, taxis | DiscussionWriting questions andanswering  | Maize seedsPlastic containersCarton boxes | KLB BK 4 Pg 82 |  |
|  | 3&4 | Reception and Response in animals- The nervous system | **By the end of the lesson, the learner** **should be able to:-**- Define reception and effects- Explain components of the nervous  system | DiscussionNotes taking | Flow diagrams of CNSand motor organs  | KLB BK 4 Pg 83-84Longhorn BK 4 Pg 76 |  |
|  | 5 | Structure of a nerveand neurone | **By the end of the lesson, the learner** **should be able to:-**Draw and label the nerve cell | DrawingDiscussion | Diagram of the nervecell | KLB BK 4 Pg 84Longhorn BK 4 Pg 77 |  |
| 13 | 1&2 | Adaptations of the Nerve CellFunctions of the Neurones | **By the end of the lesson, the learner** **should be able to:-**- State functions of neurones- Describe adaptations of the neurones  to their functions | DiscussionNotes taking | Table in roles of partsof the neurone | KLB BK 4 Pg 85Longhorn BK 4 Pg 78 |  |
|  | 3&4 | Types of neurones  | **By the end of the lesson, the learner** **should be able to:-**- Draw the sensory, motor and relay neurones- State the role of each of the neurones | DrawingDiscussionNotes taking | Diagrams of different types of neurones | KLB BK 4 Pg 85-86Longhorn BK 4 Pg 76-79 |  |
|  | 5 | Revision questions onNeurones | **By the end of the lesson, the learner** **should be able to:-**Answer correctly the questions given | Writing a testDiscussion  | Sample questions | KCSE past papers |  |
| 14/15 |  |  |  |  |  |  |  |

**BIOLOGY SCHEMES OF WORK**

**FORM FOUR 2016**

**TERM II**

**REFERENCES:**

1. KLB Secondary Biology Form 4 Students Book KLB BK 4
2. Longman Biology Book 4
3. Longhorn Biology Book 4
4. Principles of Biology Vol 2 (POB VOL 2)

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| **WK** | **LSN** | **TOPIC/S-TOPIC** | **OBJECTIVES** | **L/ACTIVITIES** | **L/T AIDS** | **REFERENCE** | **REMARKS** |
| 1 |  | **SCHOOL OPENING AND PRACTICALS EXAMS** |  |
| 2 | 1&2 | Response and Coordination in Animals- The Brain | **By the end of the lesson, the learner** **should be able to:-**- Draw a well labeled diagram of the  Brain- Explain functions of the brain | Group discussionNotes takingObservationDrawing  | Chart with brain parts | KLB BK 4 Pg 86-88Longhorn BK 4 Pg 80-82 |  |
|  | 3 | The spinal chord | **By the end of the lesson, the learner** **should be able to:-**- Draw a T.S of the spinal chord- Explain parts and functions of the  Spinal chord | DiscussionNotes takingDrawing | Diagram showing TS of human spinal chord | KLB BK 4 Pg 88-89Longhorn BK 4 Pg 82 |  |
|  | 4 | Simple Reflex Action | **By the end of the lesson, the learner** **should be able to:-**- Define reflex action- Explain simple reflex action | DiscussionQ/ANotes taking | Diagram illustrating reflex action | KLB BK 4 Pg 89-90Longhorn BK 4 Pg 82-84 |  |
|  | 5 | Conditioned reflexaction | **By the end of the lesson, the learner** **should be able to:-**- Define conditioned reflex action- Describe conditioned reflex - Differentiate between conditioned | Question and answersNotes takingDiscussion | Sample quizPairs of learners to illustrate knee jerkreflex | KLB BK 4 Pg 90-91Longhorn BK 4 Pg 84-90 |  |
| 3 | 1&2 | Transmission of nerveImpulses | **By the end of the lesson, the learner** **should be able to:-**- Define action and resting potential- Define synapse- Describe impulse transmission | DescriptionNote takingDrawing | Diagram of a neuro-junction and action +resting potential | KLB BK 4 Pg 91-92 |  |
|  | 3 | Role of hormones inCoordination | **By the end of the lesson, the learner** **should be able to:-**- State role of adrenaline and effects of  over and under secretion- Compare endocrine and nervous system | DescriptionNote takingDiscussion | Diagram of –ve and +ve feedback mechanisms | KLB BK 4 Pg 95Longhorn BK 4 Pg 87-88 |  |
|  | 4&5 | Role of hormones inCoordinationDrug abuse | **By the end of the lesson, the learner** **should be able to:-**- State the role of thyroxin and effects of over and under secretion.- Define drug abuse- State effects of drug abuse- Name commonly abused drugs  | DiscussionNotes takingQ/A | Charts of –ve feedbackProcess for thyroxidePhotos of effects ofDrug abuse | KLB BK 4 Pg 94-96Longhorn BK 4 Pg 85-89 |  |
| 4 | 1&2 | Sense organsThe eye | **By the end of the lesson, the learner** **should be able to:-**- Identify the sense organs in humans- Draw and label parts of the eye  (human) or (mammalian)- State functions of parts of the eye | DiscussionDrawingNotes taking | Charts and models ofMammalian eye | KLB BK 4 Pg 97-98Longhorn BK 4 Pg 91-92 |  |
|  | 5 | Hearing process | **By the end of the lesson, the learner** **should be able to:-**Describe the hearing process and roleof ear in body balance | Notes takingDiscussion | Chart of mammalian Ear or diagram | KLB BK 4 Pg 108-110Longhorn BK 4 Pg 107-108 |  |
| 6 | 1&2 | Ear defects | **By the end of the lesson, the learner** **should be able to:-**- State defects of the ear- Explain causes and their correction | Notes takingDiscussing | Chalk and boardDiagram of the ear | KLB BK 4 Pg 107Longhorn BK 4 Pg 108-110 |  |
|  | 3 | Support and movementIntroduction | **By the end of the lesson, the learner** **should be able to:-**- Define support- Explain importance of support and Movement in plants | Notes takingDiscussionQ/A | Diagrams of support tissues and their location | KLB BK 4 Pg 111Longhorn BK 4 Pg 115 |  |
|  | 4&5 | Mechanical tissues inPlants | **By the end of the lesson, the learner** **should be able to:-**- Name support tissues in plants- Explain factors and adaptations of These support tissues to their functions | Notes takingDrawingObservation | Diagram of supportTissues and their Location | KLB BK 4 Pg 112-115Longhorn BK 4 Pg 116-118 |  |
| 7 | 1&2 | Support in Monocotyledonous and dicotyledonous plant | **By the end of the lesson, the learner** **should be able to:-**Draw TS of monocot and dicot stemsto show support tissues | Practical observation ofstem TSNote takingDrawing  | MicroscopeRazorYoung monocot anddicot stems, stains | KLB BK 4 Pg 112 |  |
|  | 3 | Support and movement in animalsTypes of skeleton | **By the end of the lesson, the learner** **should be able to:-**- Outline importance of movement in animals- State types of skeletons and examples | ExplanationNotes takingObserving | Pictures of animals inDifferent skeletons | KLB BK 4 Pg 116-117Longhorn BK 4 Pg 119-120 |  |
|  | 4&5 | Locomotion in Fish | **By the end of the lesson, the learner** **should be able to:-**- Describe locomotion in finned fish  and adaptations- Draw a well labeled diagram of a fish- Calculate tail power | DrawingDiscussionObservationDescription and Explanation | Freshly killed fishLive fish swimming inwaterDiagram of fish | KLB BK 4 Pg 118-119Longhorn BK 4 Pg 123-125 |  |
| 8 | 1&2 | The human skeleton- Axial skeleton | **By the end of the lesson, the learner** **should be able to:-**- Describe parts of human skeleton- Describe roles of skull, ribcage and sternum | ObservingNote takingDrawing | Chart of human skeletonSpecimen of skull withsatures  | KLB BK 4 Pg 119-120Longhorn BK 4 Pg 126-127 |  |
|  | 3&4 | The vertebral column- Types of vertebra | **By the end of the lesson, the learner** **should be able to:-**- Name types of vertebra- Describe cervical vertebra | Observation of bonesDrawingNotes taking | Photos & specimen ofCervical vertebra, atlasand axis | KLB BK 4 Pg 121-122Longhorn BK 4 Pg 128 |  |
|  | 5 | Thoracic and lumbarvertebra | **By the end of the lesson, the learner** **should be able to:-**Explain structure and adaptations,functions of thoracic and lumbarvertebra | DiscussionDrawingObservation | Bones of lumbar & Thoracic regions | KLB BK 4 Pg 122-123Longhorn BK 4 Pg 133-135 |  |
| 9 | 1&2 | Caudal and sacralvertebraAppendicular skeleton | **By the end of the lesson, the learner** **should be able to:-**- Describe bones of sacrum and caudal regions- Name bones of appendicular skeleton | *© Education Plus Agencies*DescriptionNotes takingExplanationObservation | Bones of caudal and sacral regionChart of humanskeleton | KLB BK 4 Pg 124-125Longhorn BK 4 Pg 141-142 |  |
|  | 3&4 | The forelimb bones | **By the end of the lesson, the learner** **should be able to:-**- Name the bones of the forelimb- State functions of parts of each bone and adaptations | DrawingObservationDescriptionDiscussion  | Bones of forelimb | KLB BK 4 Pg 125Longhorn BK 4 Pg 143-147 |  |
|  | 5 | Bones of hind limbs | **By the end of the lesson, the learner** **should be able to:-**- Name bones of hind limb- Describe parts of the bones and Adaptations | DiscussionObservationNotes taking | Bones of hind limb | KLB BK 4 Pg 126Longhorn BK 4 Pg 148-155 |  |
| 10 | 1&2 | Practical on bones | **By the end of the lesson, the learner** **should be able to:-**Carryout practical activity to correctlyidentify various types of bones in thetest | DrawingObservationIdentificationDiscussion  | Bones of vertebral column and appendicular skeleton | KLB BK 4 Pg 122-123Longhorn BK 4 Pg 132-135 |  |
|  | 3&4 | Joints | **By the end of the lesson, the learner** **should be able to:-**- Define joint- Name types of joints- Describe the nature of each joint with examples | DrawingObservationDemonstrationDiscussion  | Diagrams of jointsStudent to demonstratemovable and immovable joints | KLB BK 4 Pg 127-128Longhorn BK 4 Pg 152-153 |  |
|  | 5 | Practice questions onJoints | **By the end of the lesson, the learner** **should be able to:-**Answer questions correctly | Answering questionsDiscussion | Sample quiz | POB VOL 2Pg 329-330Past papers |  |
| 11 | 1&2 | Muscles | **By the end of the lesson, the learner** **should be able to:-**- Define muscle- Name types of muscles and state their characteristics and differences | DiscussionDrawingNotes taking | Diagrams of muscles | KLB BK 4 Pg 129-131Longhorn BK 4 Pg 155 |  |
|  | 3&4 | Revision on joints andMuscles | **By the end of the lesson, the learner** **should be able to:-**Answer all questions correctly | Group discussion | Sample questions | KLB BK 4 Pg 131-132POB VOL 2Pg 321 |  |
|  | 5 | Revision on classification | **By the end of the lesson, the learner** **should be able to:-**Answer all questions correctly | Group discussionTeacher supervision | Sample questionsKCSE past papers | POB VOL 2Pg 43-44 |  |
| 12 | 1&2 | Dichotomous keys | **By the end of the lesson, the learner** **should be able to:-**- Construct dichotomous keys- Use given keys to identify organisms | Group discussionSupervision | Sample questionsDiagrams or photos oforganisms | POB VOL 2Pg 45-47 |  |
|  | 3&4 | Ecology | **By the end of the lesson, the learner** **should be able to:-**Answer all questions correctly | Group discussionSupervision | Sample KCSE Questions | KCSE revision papers |  |
|  | 5 | Factors in the Environment | **By the end of the lesson, the learner** **should be able to:-**Write an essay on abiotic and biotic factors and effects on distribution of organisms | Group discussionSupervision | Sample questions | KCSE and Mocks revision papers |  |
| 13 &14 |  | **JULY SERIES EXAMS BEGIN** |  |

**BIOLOGY SCHEMES OF WORK**

**FORM FOUR 2016**

**TERM III**

**REFERENCES:**

1. KLB Secondary Biology Form 4 Students Book KLB BK 4
2. Longman Biology Book 4
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| 1 |  | **SCHOOL OPENING AND SEPTEMBER SERIES EXAMS BEGIN** |  |
| 2 | 1&2 | Revision on the kidneyAnd homeostasis | **By the end of the lesson, the learner** **should be able to:-**Answer all questions correctly | Group discussionSupervision | Sample questionsKCSE past papers | KCSE and Mocks revision papers |  |
|  | 3&4 | The liver and Homeostasis  | **By the end of the lesson, the learner** **should be able to:-**Answer the discussion questions correctly | Group discussionSupervision | Sample questions | KCSE and Mocks revision papers |  |
|  | 5 | The skin and Homeostasis  | **By the end of the lesson, the learner** **should be able to:-**Answer all questions correctly | Group discussionSupervision | Sample questions | KCSE and Mocks revision papers |  |
| 3 | 1&2 | Transport in plants- Phloem and xylem | **By the end of the lesson, the learner** **should be able to:-**- Answer all given questions correctly- Observe and draw cross-sections to show order of vascular bundles | Group discussionSupervision | Sample questions | KCSE and Mocks revision papers |  |
|  | 3&4 | Cross sections of rootsand stemsTranspiration | **By the end of the lesson, the learner** **should be able to:-**- Answer all questions correctly- Observe and draw cross section undera microscope | Group discussionSupervision | Sample questions | KCSE Past Papers |  |
|  | 5 | Forces that help in water movement up the stem | **By the end of the lesson, the learner** **should be able to:-**Answer all questions correctly | Group discussionSupervision | Sample questions | KCSE Past Papers |  |
| 4 | 1&2 | Respiration | **By the end of the lesson, the learner** **should be able to:-**Answer all questions correctly | Group discussionSupervision | Sample questions | KCSE Past Papers |  |
|  | 3&4 | Gaseous exchange inPlants | **By the end of the lesson, the learner** **should be able to:-**Answer all questions correctly | Group discussionSupervision | Sample questions | KCSE Past Papers |  |
|  | 5 | Gaseous exchange inAnimals | **By the end of the lesson, the learner** **should be able to:-**Answer all questions correctly | Group discussionTeacher Supervision | Sample questions fromPast papers | KCSE Past Papers |  |
| 5 | 1&2 | Transport in plants | **By the end of the lesson, the learner** **should be able to:-**Answer all questions correctly | Group discussion | Sample questions fromPast papers | KCSE Revision Papers |  |
|  | 3&4 | Nutrition in animals | **By the end of the lesson, the learner** **should be able to:-**Answer all questions correctly | Group discussion | Sample questions fromPast papers | Past KCSE andMock Papers |  |
|  | 5 | The digestive system | Answer all questions correctly | Group discussion | Pyramid revision exams | KCSE Revision Papers |  |
| 6 | 1&2 | Food tests | **By the end of the lesson, the learner** **should be able to:-**Carry out the practical on food testsand write correct answers | Practical experiments inGroups | Practical quizReagentsFood mix | Teachers PracticalQuestions  |  |
|  | 3&4 | The cell | **By the end of the lesson, the learner** **should be able to:-**Answer all questions correctly | Group discussion | Sample questions | KCSE Revision Papers |  |
|  | 5 | Cell physiology | **By the end of the lesson, the learner** **should be able to:-**Answer all questions correctly | Group discussionSupervision  | Sample questions | Pyramid RevisionSeries |  |
| 7 | 1&2 | Cell physiologypractical | **By the end of the lesson, the learner** **should be able to:-**Carry out the practical and write correct answers | Group discussionObservationSupervision  | Exam papersPotatoStripsRuler and solutions | KCSE Revision Series  |  |
|  | 3&4 | Reproduction in plants | **By the end of the lesson, the learner** **should be able to:-**Answer all questions correctly | Group discussion | Sample questions | KCSE Revision Series  |  |
|  | 5 | Reproduction in animals | **By the end of the lesson, the learner** **should be able to:-**Answer all questions correctly | Supervised group discussion | Sample questions | KCSE Revision Series  |  |
| 8 |  | **KCSE PREPARATION BEGIN****KCSE STARTS**  |  |