**BIOLOGY SCHEMES OF WORK**

**FORM THREE 2016**

**TERM I**

**REFERENCES:**

1. KLB Secondary Biology Form 3 Students Book KLB BK 3
2. Longhorn Biology Book 3
3. 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 | 1-5 | **SCHOOL REOPENS****CAT 1 SERIES** |  |
| 2 | 1&2 | Classification IIIntroductionKingdomsMonera Protista  | **By the end of the lesson the learner should be able to:-**State principles of Binomial nomenclatureState general characteristics of kingdom monera and protista | DiscussionNote taking Observing permanent slidesDrawing  | Preserved slides of amoeba and bacteriaMicroscopePond waterslides | KLB Pg 1-5POB VOL 2 Pg 1-4Teacher’s guide Pg 48-50 |  |
|  | 3&4 | Kingdom Fungi | **By the end of the lesson the learner should be able to:-**State general characteristics of fungiDraw and name the rhizopus  | DiscussionNote taking Observing specimensDrawing  | MicroscopeBread with moulds | KLB Pg 6POB VOL 2 Pg 4Longhorn Pg 9-14 |  |
|  | 5 | Economic importance of monera, protista and fungi | **By the end of the lesson the learner should be able to:-**State importance of named kingdoms | DiscussionNote taking  | ChalkboardLesson notes | KLB Pg 7-8POB VOL 2 Pg 4-8 |  |
| 3 | 1&2 | Kingdom plantae  | **By the end of the lesson the learner should be able to:-**Identify three divisions of plantae and their general characteristics | DiscussionDrawingObserving plants  | MicroscopesMoss plantFern plantFrond | KLB Pg 7-8POB VOL2 Pg15-17 |  |
|  | 3&4 | DivisionAnglos permaphyta  | **By the end of the lesson the learner should be able to:-**State the differences between monocots and dicots | DiscussionNote taking Observing statement | Bean plantMonocot plant | KLB Pg 10-11POB VOL 2 Pg  |  |
|  | 5 | Kingdom Animalia | **By the end of the lesson the learner should be able to:-**State general characteristics of animalsIdentify phyla in animalia | Discussion  | ChalkboardLesson notes | KLB Pg 12POB VOL 2 Pg 25 |  |
| 4 | 1&2 | Phylum Arthropoda | **By the end of the lesson the learner should be able to:-**State distinguishing characteristics of arthropodaState characteristics of various classes of arthropoda | Group discussionObserving preserved specimens of arthropods  | Arthropods e.g. locust, crab, millipede, spider, centipede or pictures | KLB Pg 13-15POB VOL2 Pg25-26Teacher’s guidePg 62-65 |  |
|  | 3&4 | Phylum ChordataClass:PiscesAvesAmphibian  | **By the end of the lesson the learner should be able to:-**State main characteristics of chordatesState characteristics of named classes in chordata | DiscussionObserving specimens  | Preserved fresh specimen of fish, aves, amphibia | KLB Pg 16-17POB VOL 2 Pg 32-33 |  |
|  | 5 | ClassMammalianReptilia | **By the end of the lesson the learner should be able to:-**State general characteristics of mammals and reptiles | DiscussionObserving specimens  | Reptile specimenChalkboard | KLB Pg 18-21POB VOL 2 Pg 34-37 |  |
| 5 | 1&2 | Dichotomous KeyFeatures to identify leaves | **By the end of the lesson the learner should be able to:-**Distinguish between various plant leaves for the purpose of constructing the dichotomous key | DiscussionObserving leavesNote taking  | Leaf collection and branchesPictures of leaves | KLB Pg 24-25Teacher’s guidePg 69-70 |  |
|  | 3&4 | Features used to identify animals | **By the end of the lesson the learner should be able to:-**Identify various features to distinguish animals | DiscussionObserving specimens  | Specimens from different animal phyla or pictures | KLB Pg 27-28POB VOL 2 Pg 41-42 |  |
|  | 5 | Rules for constructing dichotomous keys | **By the end of the lesson the learner should be able to:-**Construct a dichotomous key applying rules given | Construction of dichotomous key (group work) | Pictures of leavesQuiz sample | KLB Pg 23POB VOL 2 Pg 40 |  |
| 6 | 1&2 | Using a constructed dichotomous key to identify organisms | **By the end of the lesson the learner should be able to:-**Identify organisms correctly using a given dichotomous key | *© Education Plus Agencies*DiscussionAnswering questions  | Constructed dichotomous keysQuiz sample | KLB Pg 27-29POB VOL 2 Pg 40-43 |  |
|  | 3&4 | EcologyIntroduction | **By the end of the lesson the learner should be able to:-**Identify organisms correctly using a given dichotomous key | DiscussionNote taking  | ChalkboardLesson notes | KLB Pg 33-34POB VOL 2 Pg 48 |  |
|  | 5 | Abiotic Factors | **By the end of the lesson the learner should be able to:-**State and explain abiotic factors in the ecosystem | DiscussionNote taking  | ChalkboardVarious wealth instruments or pictures of the instrument | KLB Pg 34-36Longhorn Pg 56-58 |  |
| 7 | 1&2 | Biotic factors in the ecosystemSymbiosisPredation | **By the end of the lesson the learner should be able to:-**Identify the biotic factorsDescribe how each factors affects distribution of organisms | Group discussionNote taking Presentation  | Pictures e.g. of predation in progress in progressRoots with nodules | KLB Pg 37-40POB VOL 2 Pg 54-56Longhorn Pg 54-60 |  |
|  | 3&4 | Competition parasitism | **By the end of the lesson the learner should be able to:-**Describe how the two factors affect the distribution of organisms | DiscussionNote taking  | ChalkboardFlow chart | KLB Pg 37-40POB VOL 2 Pg 69-96 |  |
|  | 5 | The Nitrogen CycleIntroduction | **By the end of the lesson the learner should be able to:-**Define the nitrogen cycleExplain nitrificationGive examples of nitrifying bacteria | DiscussionNote taking  | ChalkboardFlowcharts  | KLB Pg 40-41POB VOL 2 Pg 69-96 |  |
| 8 | 1&2 | NitrificationNitrogen CycleNitrogen Fixation | **By the end of the lesson the learner should be able to:-**Describe the various types of nitrogen fixationGive examples of nitrogen fixing bacteria | DiscussionNote taking  | ChalkboardFlowcharts  | KLB Pg 43POB VOL 2 Pg 72Longhorn Pg 63-66 |  |
|  | 3&4 | The Nitrogen CycleDenitrification | **By the end of the lesson the learner should be able to:-**Explain the priocess of denitrificationGive its advantages and disadvantagesGive examples of denitrifying bacteria | DiscussionNote taking  | ChalkboardFlowcharts  | KLB Pg 41POB VOL 2 Pg 70Longhorn Pg 65-66 |  |
|  | 5 | Energy flow in the ecosystem | **By the end of the lesson the learner should be able to:-**Describe the trophic levels and state how energy flows through them | DiscussionNote taking  | Flowcharts showing trophic levels | KLB Pg 44-46POB VOL 2 Pg 69 |  |
| 9 | 1&2 | Food chains and food webs | **By the end of the lesson the learner should be able to:-**Identify and draw food chains and food webs in a given ecosystem | Group discussionConstruction of food chains/webs  | ChalkboardSample questions | Longhorn Pg 60-71KLB Pg 42-44POB VOL 2 Pg 70 |  |
|  | 3&4 | Food chain and food webs | **By the end of the lesson the learner should be able to:-**Construct pyramids of numbers and biomas from a given dataDescribe the shape of the pyramid drawn giving reasons | DiscussionConstruction of pyramids  | ChalkboardPictures of pyramids | KLB Pg 44-46POB VOL 2 Pg 71Longhorn Pg 71-73 |  |
|  | 5 | Population EstimationQuadrat method | **By the end of the lesson the learner should be able to:-**Describe how a quadrat can be used to estimate the number of organisms in a given ecosystem | Field experimentNote taking  | QuadratMetre rules | KLB Pg 46-47 |  |
| 10 | 1&2 | Line and belt transectCapture and recapture method | **By the end of the lesson the learner should be able to:-**Calculate population of organisms using given data by capture and recapture methodState assumptions taken | DiscussionNote taking CalculationsQuestion and answer  | ChalkboardSample questions | KLB Pg 48POB VOL 2 Pg 83-86Longhorn Pg 73 |  |
|  | 3&4 | Adaptations of plants to various habitats- Xerophytes | **By the end of the lesson the learner should be able to:-**Name the habitat of xerophytesState the characteristic of xerophytic habitatsState adaptations of xerophytes | DiscussionNote taking  | Cactus plantPictures of xerophytes | KLB Pg 50POB VOL 2 Pg 60-65 |  |
|  | 5 | Adaptations of mesophytes | **By the end of the lesson the learner should be able to:-**State characteristics of mesophytic habitatsState adaptations of mesophytes | Group discussionNote taking  | ChalkboardMesophytic plants | KLB Pg 51POB VOL 2 Pg 60-62 |  |
| 11 | 1&2 | Halophytes  | **By the end of the lesson the learner should be able to:-**State characteristics of halophytes, aquatic environmentState adaptations of halophytes | Observing both floating and submerged plantsDiscussion  | Water plantChalkboard | KLB Pg 53-54POB VOL 2 Pg 63-65Longhorn Pg 64-65 |  |
|  | 3&4 | Effects of pollution on living thingsAir pollution | **By the end of the lesson the learner should be able to:-**State causes of air pollution, sources and control measures | DiscussionNote taking  | Newspapers, Extract on effects of pollutionPictures showing pollution in progress | KLB Pg 55-59POB VOL 2 Pg 100-101Longhorn Pg 86-90 |  |
|  | 5 | Water pollution  | **By the end of the lesson the learner should be able to:-**State causes of water pollution and control measures | Discussion | PicturesNewspapersExtracts  | KLB Pg 60-62POB VOL 2 Pg 105-108 |  |
| 12 | 1&2 | Soil pollution  | **By the end of the lesson the learner should be able to:-**Describe causes, sources and control measures of soil pollution | Discussion | Pictures e.g. heaped rubbish  | KLB Pg 62-63POB VOL 2 Pg 109-112 |  |
|  | 3&4 | Radioactive Emissions  | **By the end of the lesson the learner should be able to:-**State effect of radiation on living things | DiscussionQuestion and answer  | ChalkboardPictures of people with disorders related | KLB Pg 64Longhorn Pg 110 |  |
|  | 5 | Human diseasesBacterial | **By the end of the lesson the learner should be able to:-**Describe two bacterial diseases, causes, effects, prevention and transmission | DiscussionQuestion answer  | Pictures of bacteriaLesson notes | KLB Pg 65-66Longhorn Pg 111 |  |
| 13 | 1&2 | MitosisMetaphaseAnaphaseTelophase  | **By the end of the lesson the learner should be able to:-**Describe behaviour of chromosomes during the three stages | DiscussionNote taking Drawing  | Diagram of chromosomes various stagesSample questions | KLB Pg 81-84POB VOL 2 Pg 144Teacher’s guidePg 117-119 |  |
|  | 3&4 | Meiosis II | **By the end of the lesson the learner should be able to:-**Describe behaviour of chromosomes during meiosis | DiscussionNote taking Question answer  | Sample questionsCharts of contrast | KLB Pg 84POB VOL 2 Pg 144 |  |
|  | 5 | Meiosis II | **By the end of the lesson the learner should be able to:-**Describe chromosome behaviour during the five stages at meiosis | DiscussionQuestion answer  | Sample questionsCharts of contrast  | KLB Pg 82, 86Longhorn Pg 117-122 |  |
| 14 | 1&2 | Importance of meiosis and mitosisDifferences between meiosis and mitosis | **By the end of the lesson the learner should be able to:-**State differences and significance of meiosis and mitosis | DiscussionQuestion answer  | Sample questionsCharts of contrast  | KLB Pg 82, 86Longhorn Pg 117-122 |  |
|  | 3&4 | Asexual reproductionBinary fission | **By the end of the lesson the learner should be able to:-**Identify types of asexual reproductionDescribe binary fission in amoeba | DiscussionDrawingQuestion answer  | Diagram of amoeba dividing | KLB Pg 87-88POB VOL 2 Pg 145-147 |  |
|  | 5 | Budding in yeast | **By the end of the lesson the learner should be able to:-**Describe budding in yeast | Observing budding in yeast cells | MicroscopeYeast suspension | KLB Pg 89-90Longhorn Pg 125-129 |  |
| 15 | 1&2 | Sporulation in rhizopus  | **By the end of the lesson the learner should be able to:-**Describe spore formation in rhizopusDraw and label the rhizopus | DiscussionObserving bread mouldDrawing | MicroscopeFern frondBread mould | KLB Pg 88-89POB VOL 2 Pg 146LonghornPg126-128 |  |
|  | 3&4 | Sexual reproduction in plantsStructure and function of the flower | **By the end of the lesson the learner should be able to:-**Describe the structure and function of the flowerDescribe the flower | DiscussionObserving sample of collected flowerDrawing | Flower | KLB Pg 89-90 |  |
|  | 5 | Pollination | **By the end of the lesson the learner should be able to:-**Define the term pollinationDescribe the types of pollination | Discussion groupNote taking | Chart showing the type of pollination | KLB Pg 93POB VOL 2 Pg 135 |  |
| 16 |  | **EXAMINATION AND MARKING** |  |
| 17 |  | **PREPARATION OF RESULTS****CLOSING OF SCHOOL** |  |

**BIOLOGY SCHEMES OF WORK**

**FORM THREE 2016**

**TERM II**

**TOPICS:**

**REPRODUCTION**

**GROWTH AND DEVELOPMENT**

**REFERENCES:**

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

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|  |  | **SCHOOL REOPENS** |  |
| 1 | 1&2 | Adaptation of flowers to pollinationInsectWind | **By the end of the lesson the learner should be able to:-**State adaptations of wind and insect pollinated flowers | Discussion Drawing | Flowers | KLB BK 2 Pg 94Longhorn BK 2 Pg 129-131 |  |
|  | 3&4 | Factors that encounter cross pollination | **By the end of the lesson the learner should be able to:-**State the factors that encounter cross pollinationState the differences between wind and insect pollinated plants | Discussion Note taking | ChartChalkboard | KLB BK 2 Pg 95Longhorn BK 2 Pg 132 |  |
|  | 5 | Process of fertilization | **By the end of the lesson the learner should be able to:-**Describe the process of fertilization in flowering plants | Discussion Note takingDrawing  | ChartChalkboard | KLB BK 2 Pg 96 |  |
| 2 | 1&2 | Changes in the flower after fertilization | **By the end of the lesson the learner should be able to:-**State the changes in the flower after fertilization | Discussion Note taking | Lesson notesChalkboard | KLB BK 2 Pg 95POB VOL 2 Pg 161 |  |
|  | 3&4 | Seed and fruit development | **By the end of the lesson the learner should be able to:-**Describe the development of a seedDescribe the development of a fruit | Discussion in groupsNote takingObserving fruits and seeds | Lesson notesChalkboardChartSeeds, Fruits  | KLB BK 2 Pg 97POB VOL 2 Pg 161 |  |
|  | 5 | Differences between seed and fruitsClassification of fruits | **By the end of the lesson the learner should be able to:-**State the differences between the seed and fruitClassify fruits | Discussion Note taking | Chalk and board | KLB BK 2 Pg 98-99POB VOL 2 Pg 162 |  |
| 3 | 1&2 | PlacentationTypes | **By the end of the lesson the learner should be able to:-**Describe the various types of placentations | Discussion Note takingDrawing | ContainersPetri dishesBlades/scapelsHacksaw | KLB BK 2 Pg 101Get it Right Pg |  |
|  | 3&4 | Fruit and seed dispersal | **By the end of the lesson the learner should be able to:-**State the importance of seed dispersal | Discussion Note takingDrawing | SeedsJacaranda, Nandi flame, tridax, cotton, tecomo seed  | KLB BK 2 Pg 102-103Get it Right Pg |  |
|  | 5 | Adaptations of fruits and seed dispersal to wind | **By the end of the lesson the learner should be able to:-**State the adaptations of fruit and seed dispersal to wind | Discussion Note takingDrawing | ArgemonWicotina species | KLB BK 2 Pg 103Get it Right Pg |  |
| 4 | 1&2 | Adaptations of fruits and seed dispersal to animal dispersal | **By the end of the lesson the learner should be able to:-**State the adaptation of fruit and seed to animal dispersal | Discussion Note taking | Chalk and board | KLB BK 2 Pg 103Longhorn Pg |  |
|  | 3&4 | Self dispersal mechanism | **By the end of the lesson the learner should be able to:-**Describe the adaptation of fruits to explosive mechanism | Discussion Note taking | Chalk and board | KLB BK 2 Pg 103-104POB VOL 2 Pg 171 |  |
|  | 5 | Sexual reproduction in animalsExternal fertilization in amphibians | **By the end of the lesson the learner should be able to:-**Describe the external fertilization in amphibians  | Discussion in groups | Chalk and boardCharts showing amphibians | KLB BK 2 Pg 104-105POB VOL 2 Pg |  |
| 5 | 1&2 | Internal fertilization inReptilesBirdsMammals | **By the end of the lesson the learner should be able to:-**Describe internal fertilization in reptiles, birds, mammalsState the differences between internal and external fertilization | Discussion Note takingObserving specimens of reptiles, birds and mammals | Charts of reptilesSpecimens on reptiles, birds and mammals | KLB BK 2 Pg 105-106POB VOL 2 Pg 165 |  |
|  | 3&4 | Reproduction in human beingsMale reproductive system | **By the end of the lesson the learner should be able to:-**State various parts of the male reproductive system and state its functionsState the adaptation of the various parts to its function | DrawingObserving charts showing male reproductive systemNote taking | Chalk and boardCharts showing male reproductive system | KLB BK 2 Pg 105-107POB VOL 2 Pg 166 |  |
|  | 5 | Female reproductive system | **By the end of the lesson the learner should be able to:-**State and give functions of various parts of the female reproductive system | DrawingObserving specimen of reproductive systemNote taking | Charts showing female reproductive systemChalk and board | KLB BK 2 Pg 108POB VOL 2 Pg 167 |  |
| 6 | 1&2 | FertilizationStructure of gametesHuman spermsHuman ovum | **By the end of the lesson the learner should be able to:-**Define fertilizationDescribe structure of human sperm and human ovum | Discussion in groupsDrawingObserving charts of human ovum/sperm | Chalk and boardChart  | KLB BK 2 Pg 111POB VOL 2 Pg 167 |  |
|  | 3&4 | Process of Fertilization | **By the end of the lesson the learner should be able to:-**Describe the process of fertilization in human beings | Discussion DrawingCharts showing the process of fertilization | Chalk and boardCharts showing the process of fertilization in plants | KLB BK 2 Pg 111-113POB VOL 2 Pg 173 |  |
|  | 5 | ImplantationFormation of Placenta | **By the end of the lesson the learner should be able to:-**State the functions of the placentaState the substances that passes through the placenta & those that don’t | Discussion Note taking | Chalk and board | KLB BK 2 Pg 114-115POB VOL 2 Pg 174 |  |
| 7 | 1&2 | Gestation Period | **By the end of the lesson the learner should be able to:-**State gestation period for various animals | Discussion Note taking | Table showing gestation period for various animals | KLB BK 2 Pg 116POB VOL 2 Pg 174 |  |
|  | 3&4 | Birth (Parturition)Abortion | **By the end of the lesson the learner should be able to:-**Define the term birthDefine abortionDescribe the process of abortion and what cause it | Discussion Note taking | Chalk and board | KLB BK 2 Pg 117-119POB VOL 2 Pg 177 |  |
|  | 5 | Role of Hormones in Human Sexual Characteristics | **By the end of the lesson the learner should be able to:-**Identify the hormones that are responsible for sexual characteristicsState the role of the hormones | Discussion Note taking | Chalk and board | KLB BK 2 Pg 120-122POB VOL 2 Pg 178 |  |
| 8 | 1&2 | Sexual transmitted diseasesGonorrheaSyphilisHerpes | **By the end of the lesson the learner should be able to:-**State the S.T.DsState the causes and control of the S.T.Ds identified | Discussion Note taking | Chalk and boardChart showing people suffering from S.T.Ds | KLB BK 2 Pg 123-127POB VOL 2 Pg 179 |  |
|  | 3&4 | Sexual transmitted diseasesTrichomoniasisCardidiasisHepatitisHIV and Aids | **By the end of the lesson the learner should be able to:-**State the S.T.DsState the cause and control of the S.T.Ds identified | Discussion Note taking | Chalk and boardCharts showing people suffering from S.T.Ds | KLB BK 2 Pg 123POB VOL 2 Pg 179 |  |
|  | 5 | Disadvantages of sexual reproduction | **By the end of the lesson the learner should be able to:-**State the disadvantages of sexual reproduction | Discussion Note taking | Chalk and board | KLB BK 2 Pg 127-128POB VOL 2 Pg 180 |  |
| 9 | 1&2 | Growth and developmentDefinition of growth and development | **By the end of the lesson the learner should be able to:-**Define growth and development | Discussion Note takingQuestion answer | Chalk and board | KLB BK 2 Pg 132POB VOL 2 Pg 186 |  |
|  | 3&4 | Growth and development in animals | **By the end of the lesson the learner should be able to:-**Describe growth and development in animals | Discussion Note takingQuestion answer | Chalk and board | KLB BK 2 Pg 132POB VOL 2 Pg 186-187 |  |
|  | 5 | Measurement of growth | **By the end of the lesson the learner should be able to:-**Plot the S-shaped curveDescribe the phases of the curve drawn | Discussion Note takingQuestion answer | Chalk and boardRuler | KLB BK 2 Pg 132POB VOL 2 Pg 187-188 |  |
| 10 | 1&2 | Intermittent growth curve in arthropods | **By the end of the lesson the learner should be able to:-**Describe the intermittent growth curveDefine the term insten  | Discussion Note takingDrawing of curves on chalkboard | Chalk and board | KLB BK 2 Pg 135POB VOL 2 Pg 188 |  |
|  | 3&4 | Intermittent growth curve and sigmoid curve (normal) | **By the end of the lesson the learner should be able to:-**Draw the sigmoid and intermittent growth curve | Drawing  | Chalk and board | KLB BK 2 Pg 135POB VOL 2 Pg 188 |  |
|  | 5 | Phases of sigmoid growth curve | **By the end of the lesson the learner should be able to:-**State and describe the various phases of sigmoid growth curve | Discussion Drawing  | Chalk and boardLesson notes | KLB BK 2 Pg 133POB VOL 2 Pg |  |
| 11 |  | **EXAMINATION AND MARKING** |  |
| 12 |  | **PREPARATION OF REPORT BOOKS****CLOSING OF SCHOOL** |  |

**BIOLOGY SCHEMES OF WORK**

**FORM THREE 2016**

**TERM III**

**TOPICS:**

**GROWTH AND DEVELOPMENT**

**REFERENCES:**

1. KLB Secondary Biology Form 3 Students Book KLB BK 3
2. Get it Right
3. 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** |
|  |  | **SCHOOL OPENING** |  |
| 1 | 1&2 | Examples of Measurements and Growth- Using length of leaf | **By the end of the lesson, the learner** **should be able to:-**Calculate the measurement of growthusing length of a leaf | DiscussionNotes takingDrawing | ThreadLeavesChalk and board | KLB Pg 145POB VOL 2 Pg 196 |  |
|  | 3&4 | Using area of leafUsing radicle/Determination of growth regions | **By the end of the lesson, the learner** **should be able to:-**Calculate the measurement of growth using area of leaf and radicle | DiscussionDrawing | Chalk and boardRadicle | KLB Pg 140 |  |
|  | 5 | Growth andDevelopment in plants | **By the end of the lesson, the learner** **should be able to:-**Discuss growth and development inPlants | DiscussionNotes taking | Chalk and board | KLB Pg 135POB VOL 2 Pg 190 |  |
| 2 | 1&2 | Structure of a seed andchanges that occurduring germination | **By the end of the lesson, the learner** **should be able to:-**- Describe the structure of a seed- State the changes that occur during  germination | DiscussionNotes taking | Chalk and board | KLB Pg 136POB VOL 2 Pg 190Get it Right Pg 232 |  |
|  | 3&4 | Conditions necessary for germination- Hormones- Water- Viability of seeds- Moisture- Air/Oxygen- Temperature- Enzymes | **By the end of the lesson, the learner** **should be able to:-**State the conditions that are necessaryfor germination to take place | DiscussionNotes taking | Chalk and board | KLB Pg 138POB VOL 2 Pg 192Get it Right Pg 233 |  |
|  | 5 | Types of germinations- Apigeal germination | **By the end of the lesson, the learner** **should be able to:-**Describe the epigeal types of germination | Drawing DiscussionNotes taking | Chalk and board, Flow chart Beans and maize seeds | KLB Pg 139POB VOL 2 Pg 193 |  |
| 3 | 1&2 | Hypogeal Germination | **By the end of the lesson, the learner** **should be able to:-**Describe the hypogeal type ofgermination  | Drawing DiscussionNotes taking | Maize seedlingChalk and board | KLB Pg 141POB VOL 2 Pg 191Get it Right Pg 232 |  |
|  | 3&4 | Dormancy in seeds- Factors that cause seed dormancy in seeds | **By the end of the lesson, the learner** **should be able to:-**- Define dormancy in seeds- State the factors that causes seed Dormancy in seeds | DiscussionNotes taking | Chalk and boardSample questions | KLB Pg 137Get it Right Pg 231 |  |
|  | 5 | Ways of breaking seeddormancy | **By the end of the lesson, the learner** **should be able to:-**State and describe the ways of breakingSeed dormancy | DiscussionNotes taking | Chalk and boardSample questions | KLB Pg 137Get it Right Pg 231 |  |
| 4 | 1&2 | Types of growth in Plants- Primary growth | **By the end of the lesson, the learner** **should be able to state:-**- Regions of cell division- Regions of growth in root- State what results to primary growth | Drawing DiscussionNotes taking | ChartPlants with shoots androots | KLB Pg 142POB VOL 2 Pg 193 |  |
|  | 3&4 | Secondary growth | **By the end of the lesson, the learner** **should be able to:-**- State what results to secondary growth- Draw how secondary growth has occurred- Describe secondary growth | Drawing DiscussionNotes taking | Tree stemsChartChalk and board | KLB Pg 144-146 |  |
|  | 5 | Secondary growth | **By the end of the lesson, the learner** **should be able to:-**- Draw the section through a lenticel- Draw and show the annual rings | Drawing DiscussionNotes taking | Tree stemsChartChalk and board | KLB Pg 144-146 |  |
| 5 | 1&2 | Role of hormones in Plants growth anddevelopment- Auxins | **By the end of the lesson, the learner** **should be able to:-**- State the role of hormones in plants- State one well known auxin- Role of auxins | DiscussionNotes taking | Chalk and boardSample questions | KLB Pg 146-147 |  |
|  | 3&4 | Gibberellins Cytokinins/kinetins | **By the end of the lesson, the learner** **should be able to:-**State the importance of gibberellins, cytokinins and kinetins to plants | DiscussionNotes taking | Chalk and boardSample questions | KLB Pg 146-147 |  |
|  | 5 | Ethylene/EtheneAbscisic Acid (ABA)Florigen  | **By the end of the lesson, the learner** **should be able to:-**State the importance of ethane, abscisic acid and florigen | DiscussionNotes taking | Chalk and boardSample questions | KLB Pg 146-147 |  |
| 6 | 1&2 | Apical dominance | **By the end of the lesson, the learner** **should be able to:-**Define apical dominance | DiscussionNotes taking | Chalk and boardSample questions andanswers | KLB Pg 147-148POB VOL 2 Pg 198 |  |
|  | 3&4 | Growth and Development in insects- Life history of insects- Complete  metamorphosis  | **By the end of the lesson, the learner** **should be able to:-**- Describe the development of a house fly- Define complete and incomplete Metamorphosis | DiscussionNotes taking | Chalk and boardSample questions | KLB Pg 146-147 |  |
|  | 5 | Incomplete Metamorphosis | **By the end of the lesson, the learner** **should be able to:-**- Describe the life cycle of a housefly- Describe the development in a  Cockroach  | Drawing Notes taking | Chalk and boardSample questions | KLB Pg 149 |  |
| 7 | 1&2 | Role of hormones ininsects metamorphosis | **By the end of the lesson, the learner** **should be able to:-**State role of juvenile hormone, moultstimulating hormone and moultinghormone | DiscussionNotes taking | Chalk and boardSample questions | KLB Pg 150 |  |
|  | 3&4 | RevisionGrowth andDevelopment | **By the end of the lesson, the learner** **should be able to:-**Answer all questions on growth anddevelopment page 151-152, questions1,2 and 3,5,6 and 7 | DiscussionNotes takingDrawingAnswering questions | Chalk and boardSample questions | KLB Pg 151-152 |  |
|  | 5 | RevisionGrowth andDevelopment | **By the end of the lesson, the learner** **should be able to:-**Answer the questions on page 152-155questions 8-15 | Group discussion | Chalk and board | KLB Pg 152-155 |  |
| 8 |  | **EXAMINATIONS AND MARKING** |  |
| 9 |  | **PREPARATION OF REPORT BOOKS****AND CLOSING SCHOOL** |  |