SCHEME OF WORK BIOLOGY

FORM 4 2022 TERM I

ENDARASHA BOYS

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| **WK** | **LSN** | **TOPIC** | **SUB-TOPIC** | **OBJECTIVES** | **L/T ACTIVITIES** | **L/T AIDS** | **REFERENCE** | **REMARKS** |
| **2** | 1 | GENETICS | The concept of variation. | By the end of the lesson, the learner should be able to:Define Genetics. Define variation. | Exposition of new concepts.Probing questions on some variations in human beings.Observe some variations in human beings such as tongue rolling, finger prints, students? heights, etc.Discussion on the concept of variation. | Ink pad, hand lenses, white paper. | KLB BK IV. PP 1-2. |  |
| 2 | GENETICS | Discontinuous variation. | By the end of the lesson, the learner should be able to:Define discontinuous variation. | Observe some discontinuous variations in human beings such as tongue rolling, sex, blood groups, etc.Discussion on the concept of discontinuous variation. | text book | KLB BK IV. P 3. |  |
| 3-4 | GENETICS | Continuous variation. | By the end of the lesson, the learner should be able to:Define continuous variation.Give examples of characteristics that show continuous variation. | Class activity ; students measure and record their heights;Plotting of frequency- height graph; Analyzing the graph;Discussion with probing questions. | Metre rules/ tape measure,Graph papers | KLB BK IV. PP 3-4 |  |
| 5 | GENETICS | Causes of variation. | By the end of the lesson, the learner should be able to:Discuss causes of variation. | Exposition of new concepts.Discussion with probing questions. | text book | KLB BK IV. P 4 |  |
| **3** | 1 | GENETICS | The chromosome. | By the end of the lesson, the learner should be able to:Describe the structure of chromosomes. | Exposition of new concepts.Probing questions. Discussion. | text book | KLB BK IV. PP 4-5. |  |

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|  | 2 | GENETICS | Chromosomal behaviour during mitosis. | By the end of the lesson, the learner should be able to:Describe chromosomal behaviour during mitosis. | Exposition;Teacher demonstrations; Drawing diagrams; Detailed discussion. | Scissors,Manilla papers, thread, cellotape. | KLB BK IV. PP 5-6 |  |
| 3-4 | GENETICS | Chromosomal behaviour during meiosis.Genes and DNA. | By the end of the lesson, the learner should be able to:Describe chromosomal behaviour during meiosis.Describe the structure of genes and DNA. Identify the role of DNA. | Exposition;Teacher demonstrations; Drawing diagrams; Detailed discussion.Expository approach. | Scissors, Manilla papers,threads, cellotape. Chart- the double helix DNA. | KLB BK IV. PP 6-7 KLB BK IV. PP 7-8 |  |
| 5 | GENETICS | Genes and DNA. | By the end of the lesson, the learner should be able to:Describe the structure of genes and DNA. Identify the role of DNA. | Expository approach. | Chart- the double helix DNA. | KLB BK IV. PP 7-8 |  |
| **4** | 1 | GENETICS | DNAreplication. First law of heredity. | By the end of the lesson, the learner should be able to:Describe DNA replication.Explain the role of DNA in protein synthesis.Describe Mendel?s experiments.State Mendel?s first law. | Exposition;Drawing mRNA strands. Exposition with explanations. | text book | KLB BK IV. PP 9-10 |  |
| 2 | GENETICS | Monohybrid inheritance. | By the end of the lesson, the learner should be able to:Define monohybrid inheritance.Differentiate between genotype and phenotype. Draw diagrams to show genetic crosses. | Q/A to review Mendel?s first law.Drawing diagrams to show genetic crosses. Discussion with probing questions. | text book | KLB BK IV. PP 12-14 |  |
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|  | 3-4 | GENETICS | Monohybrid inheritance. Genetic crosses using a punnet square. | By the end of the lesson, the learner should be able to:Define monohybrid inheritance.Differentiate between genotype and phenotype. Draw diagrams to show genetic crosses.Show fusion of gametes using a punnet square. | Q/A to review Mendel?s first law.Drawing diagrams to show genetic crosses. Discussion with probing questions.Completing a punnet square;Brief discussion. | text book | KLB BK IV. PP 12-14 KLB BK IV. PP 14-15 |  |
| 5 | GENETICS | Ratios of phenotypes and genotypes. | By the end of the lesson, the learner should be able to:Explain the concept of probability in inheritance of characteristics. | Q/A to review phenotypes and genotypes.Simple experiments on probability.Discussion. | Beans of two different colours, beakers. | KLB BK IV. PP 15-17 |  |
| **5** | MID TERM BREAK AND EXAMS |
| **6** | 1 | GENETICS | Incomplete dominance. | By the end of the lesson, the learner should be able to:Cite examples of incomplete dominance. Illustrate incomplete dominance with diagrams. | Exposition; Discussion; Drawing diagrams. | chart | KLB BK IV. PP 19-20. |  |
| 2 | GENETICS | Incomplete dominance. | By the end of the lesson, the learner should be able to:Cite examples of incomplete dominance. Illustrate incomplete dominance with diagrams. | Exposition; Discussion; Drawing diagrams. | chart | KLB BK IV. PP 19-20. |  |
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|  | 3-4 | GENETICS | Inheritance of ABO blood groups.Inheritance of Rhesus factor. Determining unknown genotypes. | By the end of the lesson, the learner should be able to:Illustrate inheritance of blood groups with diagrams.Describe inheritance of Rhesus factor.Determine unknown genotypes using test crosses and selfing crosses. | Exposition; Discussion; Drawing diagrams;Supervised practice on inheritance of blood groups.Discussion. Exposition; Probing questions; Drawing illustrative diagrams; Discussion. | charttext book | KLB BK IV. PP 20-21 KLB BK IV. PP 22-23 |  |
| 5 | GENETICS | Sex determination in man. | By the end of the lesson, the learner should be able to:Describe sex determination in man. | Exposition; Drawing illustrative diagrams; Discussion. |  | KLB BK IV. PP 23-24 |  |
| **7** | 1 | GENETICS | Sex-linked genes and traits. | By the end of the lesson, the learner should be able to:Identify sex-linked traits in man.Illustrate inheritance of sex-linked traits with diagrams. | Probing questions; Drawing illustrative diagrams; Discussion. | text book | KLB BK IV. PP 24-27 |  |
| 2 | GENETICS | Sex-linked genes and traits. | By the end of the lesson, the learner should be able to:Identify sex-linked traits in man.Illustrate inheritance of sex-linked traits with diagrams. | Probing questions; Drawing illustrative diagrams; Discussion. | text book | KLB BK IV. PP 24-27 |  |
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|  | 3-4 | GENETICS | Non- disjunction. Gene mutation. | By the end of the lesson, the learner should be able to:Explain effects of non- disjunction as a chromosomal abnormality.Differentiate between chromosomal and gene mutation.Identify types of gene mutation. | Exposition of new concepts; Discussion.Q/A to review types of chromosomal mutation; Using sequence models to show chromosomal mutations.Discussion. | text book Models to show Chromosomal mutations. | KLB BK IV. PP 30-33 KLB BK IV. PP 33-35 |  |
| 5 | GENETICS | Gene mutation. | By the end of the lesson, the learner should be able to:Differentiate between chromosomal and gene mutation.Identify types of gene mutation. | Q/A to review types of chromosomal mutation; Using sequence models to show chromosomal mutations.Discussion. | Models to show Chromosomal mutations. | KLB BK IV. PP 33-35 |  |
| **8** | 1 | GENETICS | Disorders due to gene mutations. | By the end of the lesson, the learner should be able to:Illustrate genetic disorders with diagrams. | Discussion on albinism, sickle-cell anaemia, haemophilia, colour blindness.Drawing illustrative diagrams. | chart | KLB BK IV. PP 35-38 |  |
| 2 | GENETICS | Applications of genetics. | By the end of the lesson, the learner should be able to:Identify areas of practical application of genetics. | Probing questions; Open discussion; Topic review. | text book,video | KLB BK IV. PP 39-45 |  |
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|  | 3-4 | EVOLUTION | Meaning of evolution. Theories of origin of life. Evidence for organic evolution. | By the end of the lesson, the learner should be able to:Define evolution. Explain the theories of life.Cite evidence for organic evolution. | Brain storming; Probing questions;Q/A on creation theory; Exposition of chemical theory.Brain storming; Probing questions; Exposition; Discussion. | text book | KLB BK IV. PP 49-51 KLB BK IV. PP 51-59 |  |
| 5 | EVOLUTION | Comparative anatomy and homologous structures. | By the end of the lesson, the learner should be able to:Define divergent evolution.Give examples of homologous structures. | Examine forelimbs of vertebrates;Discuss adaptations and use of the limbs. | Forelimbs of vertebrates. | KLB BK IV. PP 59-63 |  |
| **9** | 1 | EVOLUTION | Comparative anatomy and homologous structures. (contd) | By the end of the lesson, the learner should be able to:Define divergent evolution.Give examples of homologous structures. | Examine forelimbs of vertebrates;Discuss adaptations and use of the limbs. | Forelimbs of vertebrates. | KLB BK IV. PP 59-63 |  |
| 1 | EVOLUTION | Comparative anatomy and homologous structures. (contd) | By the end of the lesson, the learner should be able to:Define divergent evolution.Give examples of homologous structures. | Examine forelimbs of vertebrates;Discuss adaptations and use of the limbs. | Forelimbs of vertebrates. | KLB BK IV. PP 59-63 |  |
| 2 | EVOLUTION | Convergent evolution and analogous structures. | By the end of the lesson, the learner should be able to:Define convergent evolution.Give examples of analogous structures. Give examples of vestigial structures. | Examine wings of insects; wings of birds / bat.Discuss observations. | Wings of insects, wings of birds / bat. | KLB BK IV. PP 63-64 |  |

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|  | 3 | EVOLUTION | Convergent evolution and analogous structures. (contd) | By the end of the lesson, the learner should be able to:Define convergent evolution.Give examples of analogous structures. Give examples of vestigial structures. | Examine wings of insects; wings of birds / bat.Discuss observations. | Wings of insects, wings of birds / bat. | KLB BK IV. PP 63-64 |  |
| 3-4 | EVOLUTION | Convergent evolution and analogous structures. (contd) Larmack?s theory of evolution. | By the end of the lesson, the learner should be able to:Define convergent evolution.Give examples of analogous structures. Give examples of vestigial structures. Explain Larmack?s theory of evolution. | Examine wings of insects; wings of birds / bat.Discuss observations.Expositions and explanations. | Wings of insects, wings of birds / bat. text book | KLB BK IV. PP 63-64 KLB BK IV. P 67 |  |
| 5 | EVOLUTION | Darwin?s theory of natural selection. | By the end of the lesson, the learner should be able to:Explain Darwin?s theory of natural selection.Cite examples of natural selection in action. | Expositions and explanations; Probing questions; Topic review. | text book | KLB BK IV. PP 67-72 |  |
| **10** | END OF TERM EXAMS AND BREAK |