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 | DNA  replication. 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. | chart  text 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 | | | | | | | |