

BIOLOGY SYLLABUS – GRADE 10

2017-2018

TERM 1

Introduction to Biology

- Lab Rules
- Skills assessed
- Drawing Rules
- Tables and Graphs

Classification

- What is classification?
- Visible characteristics
- Binomial names
- Classifying animals/man
- In depth classification of arthropods

Ecology 1

- Interdependence – food chains and food webs
- Feeding relationships I – carnivores etc., predator-prey relationships, trophic levels
- Types of habitats
- Feeding Relationships II – symbiosis
- Energy flow in food webs and chains
- Carbon cycle
- Role of decomposers
- Introduce Sampling Techniques – quadrat, line transect, bottles, nets, capture, mark release and recapture

Ecology II

- Types of soil
- How is soil formed?
- Characteristics of soil types
- Importance of soil to organisms
- Soil erosion
- Fertilizers

Cells

- Review of cells
- Structure of animal and plant cells
- Differences between plant and animal cells

- Specialized cells
- Electron micrograph of typical plant and animal cell
- Structure of bacterium and protist (Amoeba)

Movement of Particles

- Review of diffusion, osmosis and active transport

Photosynthesis

- Structure of leaf
- Adaptations of the leaf
- Types of Nutrition
- Stages of Photosynthesis
- Factors affecting rate of photosynthesis
- Mineral nutrition in plants

Planning and Design Labs

- How to do P&D labs
- Practice labs

TERM 2

Man's Impact On The Environment Presentation

- Pollution – land, air and water
- Renewable and non-renewable resources
- Recycling – conservation
- Greenhouse effect
- Eutrophication

Nutrition in Animals

- Review of nutrients and functions
- Review of balanced diet
- Review of vegetarianism
- food tests

Enzymes

- What are enzymes?
- Properties of enzymes
- 'Lock and Key' hypothesis
- Effect of pH, temperature and substrate concentration on enzymes

Digestion

- Structure and function of the teeth
- Structure and function of the alimentary canal

TERM 3

Respiration

- Aerobic and Anaerobic respiration
 - Define each term
 - Equations for each term
 - Effect of exercise on aerobic and anaerobic respiration
- Mechanism of breathing
- Gaseous exchange
- Effects of cigarette smoking on the respiratory system
- Diseases of the respiratory system

Excretion

- Homeostasis
- Excretory products of plants and animals
- Structure and function of the kidney and nephron
- Dialysis and renal failure
- Osmoregulation