BIOLOGY SYLLABUS – GRADE 11

2017-2018

TERM 1

Disease and Man

- Review of information from research project

Transport in Plants

- Structure of Xylem and Phloem
- Movement of water
- Factors affecting transpiration rate
- Adaptations of plants for conserving water
    - halophytes, hydrophytes, mesophytes, xerophytes
- Use of potometer to measure transpiration rate

Food Storage

- Asexual reproduction – definition
- Vegetative propagation – bulbs, rhizomes, corms, runners, tubers, taproots

Transport in Animals

- Need for transport system
- Types of materials transported
- Structure and function of the heart
- Tissue Fluid formation
- Lymphatic System
- Blood vessels – arteries, capillaries and veins
- Blood groups
- Immunization
- Blood clotting

Mitosis and Meiosis

- Stages of mitosis and meiosis
- Role of mitosis in asexual reproduction
- Gamete formation – importance of meiosis
- Comparison of mitosis and meiosis

Growth

- Definition of growth
- Measurement of growth
- Growth of insects and crustaceans
- Factors affecting population growth

- S-curves
- Germination

Genetics

- The inheritance of traits (dominant and recessive genes)
- Genetic variation and its importance
- Differences between continuous and discontinuous variation in populations
- Formation of new species
- Differences between natural and artificial selection
- Role of natural selection in biological evolution
- Genetic engineering and its use to change the traits of an organism
- Advantages and disadvantages of genetic engineering

TERM 2

Response in Animals

- Definition of receptor, effector, stimulus, response
- Importance of response systems
- CNS, PNS & ANS
- Function and structure of the brain
- Reflex actions (Reflex arc)
- Synapses
- Response of plants to light and gravity
- Role of auxins
- Discussion of coleoptile experiments

Structure of the Eye

- Structure and function of the eye
- How do we see?
- Response of the eye to dim and bright light
- Accommodation to near and distant objects
- Defects of the eye

Temperature Regulation

- Skin and temperature regulation

Skeletal System

- Structure and function of the skeleton
- Importance of locomotion
- Joints
- Action of moveable joints
- Antagonistic muscles
- Differences between the vertebral and long bones

Reproduction in Plants

- Structure of flower and function of floral parts
- Comparison of wind pollinated and insect pollinated flowers
- Pollination and fertilization

Fruit Formation

- Formation of fruits
- Dispersal of fruits

Reproduction in Animals

- Structure and function of male and female reproductive system
- Menstrual cycle
- Fertilization and implantation
- Embryo development
- Functions of amniotic sac, amniotic fluid, placenta, umbilical cord
- Birth control