LIFE SCIENCES

Dear Grade 12 Life Sciences learner

A love and aptitude for science, a curious and meticulous nature, an analytic, critical and enquiring mind, enthusiasm for solving problems and endurance are some of the important characteristics needed to make a success of Life Sciences.

Subject Requirements

You need the following:

- A textbook and exercise book
- A blue or black pen
- A pencil to make drawings
- A ruler, protractor and a compass to draw a pie chart
- A non-programmable calculator

Content Checklist

Below is a checklist you should use to ensure that you have covered the content for Grade 12 in full.

Paper 1

Code of life: DNA and RNA — 45 marks

- Structures, functions and DNA replication
- Protein synthesis
- Biotechnology: DNA profiling, cloning,
- Genetic engineering, polyploidy (ethics, risks and benefits)
- Genes, chromatids, chromosomes and mutations
- Meiosis
- Karyotypes

Inheritance and genetic disorders — 45 marks

- Variation, alleles, poligenic inheritance
- Dominance and Law of segregation
- Monohybrid crossings (complete, incomplete, dominance and co-dominance, sex-linked traits, production of sex cells)
- Genetic disorders/diseases
- Pedigree diagrams

Evolution — 60 marks

- Earlier theories (Erasmus Darwin, Wallace, Charles Darwin & Lamarck)
- Natural selection, mutation and speciation
- Evidence for evolution
- Human evolution
- "Out of Africa" theory
- Evolution in present times

Paper 2

Life processes — 90 marks

- Hormones and defence mechanisms in plants
- Human nervous sytems and receptors
- Human endocrine system
- Life cycles in plants and insects
- Flowers as reproductive structures
- Reproductive strategies in certain animals
- Human reproduction

Population ecology — 40 marks

- Terminology
- Size of population
- Human population
- Social organisation

Community ecology (interactions) — 20 marks

- Predation and competition
- Symbiosis (parasitism, mutualism and commensalism)
- Human impact
- Ecological succession

Assessment

- Assessment tasks 25% — **100 marks**
- Final examination 75% — **300 marks**

During the year you will complete different formal assessment tasks. All assessment tasks are extremely important and you need to complete them to the best of your ability in order to ensure a good year mark.

The following formal assessment tasks are compulsory:

- **Term 1**: Practical task and formal test
- **Term 2**: Assignment and midyear examination
- **Term 3**: Practical task, formal test and trial examination
- **Term 4**: Final external examination: two question papers (see content checklist).
  Paper 1: 2.5 hours — 150 marks
  Paper 2: 2.5 hours — 150 marks

Tips for Success

- Ask your teacher for the content framework for Grade 12. This will give you the detailed content. Paste it in your exercise book. Tick off every topic as it is taught in class, and write the relevant textbook page number next to the topic.
- Use previous question papers throughout the year to assess your understanding of the concepts/ processes and the ability to apply the acquired knowledge in new situations