

Biology

This study enables students to:

- develop knowledge and understanding of key biological models, theories and concepts, from the cell to the whole organism
- examine the interconnectedness of organisms, their relationship to their environment, the consequences of biological change over time and the impact of human endeavours on other species

UNIT 1 How do living things stay alive?

The structure and functioning of cells, how cells work together to create systems. A close look at the digestive system and how systems work together to maintain a functioning organism. With the support of field work, students examine the structural, physiological and behavioral adaptations of a range of organisms that enable them to survive in a wetland habitat. Students will design and conduct a practical investigation into the survival of bacteria in different environments.

KEY SKILLS REQUIRED

Question and predict; plan and conduct experiments using equipment safely; record and process data; analyze and evaluate relationships in data; write a scientific report; good mathematical skills.

Assessed tasks

Practical Work Portfolio including specific scientific reports; Topic Test and quizzes; Practical Investigation; End of semester examination

UNIT 2 How is continuity of life maintained?

The need for the cells of multicellular organisms to multiply for growth, repair and replacement. The main events of the cell cycle - preparation for cell division, the phases in mitosis and cytokinesis. The key events in meiosis and compare asexual and sexual reproduction. The role and nature of stem cells. The structure of DNA, nature of genes and the use of genetic inheritance. Students apply their knowledge to consider the social and ethical implications of genetic applications in society.

KEY SKILLS REQUIRED

As above for Unit 1. Knowledge of cells and systems from Unit 1.

Assessed tasks

Practical Work Portfolio of activities, simulations, experiments. Topic Tests and quizzes
Research Investigation: Reproductive technologies. Semester Examination