ENVIRONMENTAL SCIENCE

Unit 1

How Are Earth's Dynamic Systems Interconnected to Support Life?

AREAS OF STUDY:

- How are Earth's systems organised and connected?
- How do Earth's systems change over time?
- How do scientific investigations develop understanding of how Earth's systems support life?

OUTCOMES:

On completion of this unit, students should be able to:

1. Describe the movement of energy and nutrients across Earth's four interrelated systems, and analyse how dynamic interactions among biotic and abiotic components of selected local and regional ecosystems contribute to their capacity to support life and sustain ecological integrity.

2. Analyse how changes occurring at various time and spatial scales influence Earth's characteristics and interrelated systems, and assess the impact of diverse stakeholder values, knowledge and priorities in the solutions-focused management of a selected regional environmental challenge.

3. Draw an evidence-based conclusion from primary data generated from a student-designed or student-adapted scientific investigation related to ecosystem components, ecosystem monitoring and/or change affecting Earth's systems.

ASSESSMENT:

See Unit 2

Unit 2

What Affects Earth's Capacity to Sustain Life?

AREAS OF STUDY:

- How can we manage pollution to sustain Earth's systems?
- How can we manage food and water security to sustain Earth's systems?
- How do scientific endeavours contribute to minimising human impacts of Earth's systems?

OUTCOMES:

On completion of this unit, students should be able to:

1. Explain how the chemical and physical characteristics of pollutants impact on Earth's four systems, and recommend and justify a range of options for managing the local and global impacts of pollution.

2. Compare the advantages and limitations of different agricultural systems for achieving regional and global food security, evaluate the use of ecological footprint analysis for assessing future food and/or water security, and recommend and justify a range of options for improving food and/or water security for a nominated region.

3. Investigate and explain how science can be applied to address the impacts of natural and human activities in the context of the management of a selected pollutant and/or the maintenance of food and/or water security.

ASSESSMENT:

- Scientific investigation
- Case study presentation
- Secondary data analysis
- Field work and reporting
- Response to structured questions
- Tests