Stage 6 – Geography Ecosystems at Risk/ Biophysical Environments

Porters Creek Wetland

RUMBALARA
ENVIRONMENTAL EDUCATION CENTRE

Program Overview

At Porters Creek Wetland students will study the management and impacts of stormwater runoff from a rapidly expanding urban area. Students investigate stormwater treatment devices, wetland ecosystems and measure water quality and the impact of changed hydrology on plants.

Key Questions

1. What are the reasons for the location of the Porters Creek wetland?
2. What action is appropriate for managing wetland ecosystems sustainably?
3. What will the Porters Creek wetland be like in the future?

Learning Experiences & Content

Geographical Tools

Students will use a variety of geographical tools to acquire, process and communicate geographical information such as maps, surveys and fieldwork instruments eg anemometers, thermometers, light meters, compasses, clinometers and water and soil testing instruments.

Water Quality

Students will use water testing equipment and conduct a waterbug survey to measure the quality of the water in the Porters Creek wetland.

Location Study

Students will compare two locations, adjacent to the wetland and on the ridge. They will use a variety of instruments to measure abiotic factors including anemometers, light meters, clinometers and soil testing instruments to gather their results. The vegetation present will also be noted.

Fishburn Crescent Stormwater drain

Students will visit the Fishburn Crescent stormwater drain which is fed stormwater from 30 hectares of streets and houses. It is also the location of a large patch of dieback and has been invaded by weeds.

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Outcomes

Geography – Stage 6

❁ **H1** explains the changing nature, spatial patterns and interaction of ecosystems, urban places and economic activity.

❁ **H2** explains the factors which place ecosystems at risk and the reasons for their protection.

❁ **H5** evaluates environmental management strategies in terms of ecological sustainability.

❁ **H6** evaluates the impacts of, and responses of people to, environmental change.

❁ **H7** justifies geographical methods applicable and useful in the workplace and relevant to a changing world.

❁ **H8** plans geographical inquiries to analyse and synthesise information from a variety of sources.

❁ **H9** evaluates geographical information and sources for usefulness, validity and reliability.

❁ **H10** applies maps, graphs and statistics, photographs and fieldwork to analyse and integrate data in geographical contexts.

❁ **H11** applies mathematical ideas and techniques to analyse geographical data.

❁ **H12** explains geographical patterns, processes and future trends through appropriate case studies and illustrative examples.

❁ **H13** communicates complex geographical information, ideas and issues effectively.

Geography Content

Ecosystem case study

Students:

❁ Study the Porters Creek wetland as a case study of an ecosystem at risk to illustrate their unique characteristics including:

- spatial patterns and dimensions: location, altitude, latitude, size, shape and continuity

- biophysical interactions including:
  - the dynamics of weather and climate
  - geomorphic and hydrologic processes such as earth movements, weathering, erosion, transport and deposition, soil formation
  - biogeographical processes: invasion, succession, modification, resilience
  - adjustments in response to natural stress

- the nature and rate of change which affects ecosystem functioning

- human impacts (both positive and negative)

- traditional and contemporary management practices.