



Itinerary: Freshwater Studies: Years 10-12

Learning Goals:

- **recognise** that biodiversity includes the diversity of species in ecosystems
- **determine** the diversity of macro-invertebrate and vertebrate species in two local freshwater ecosystems
- **use** a variety of appropriate technologies and other equipment to measure abiotic factors in the field
- **analyse** species diversity indices, pollution sensitivity and abiotic factors to compare ecosystems across spatial and temporal scales
- **explain** how environmental factors limit the distribution and abundance of species in an ecosystem
- **evaluate** the health of local freshwater ecosystems using data collected from the field
- **design** modifications to the local environment to reduce the level

Inspiring science beyond the classroom

Time	Activity
9.30–9.45 (15 min)	Introduction to staff, program and facilities Discussion: Why is water quality important? What indicators can be used to determine waterway health?
9.45–10.00 (15 min)	Catchment ID: Catchment identified using a map
10.00 –11.00 (1 hours)	Equipment Usage / Safety considerations Waterway Study: Site observations; habitat assessment; developing sampling techniques; recording of abiotic data (e.g. temperature, turbidity, pH, conductivity, dissolved oxygen, nitrates, phosphates); aquatic animal collection (using dip nets)
11.00-11.20 (20 min)	First Break
11.20–12.50 (1 ½ hours)	Microscopes: Aquatic animal identification, recording of abundance and distribution of aquatic organisms from two sites; Mimosa Creek and Stable Swamp Creek.
12.50–1.20 (30 min)	Second Break: Visiting teacher to supervise completion of field booklets (Data Sharing)
1.20-2.20 (1 hour)	Data Analysis & Conclusion Share/collate data and calculation of Simpson's Diversity Index; rate waterway in terms of biotic and abiotic conditions; comparison of rating with Healthy Waterways Report Card; make recommendations to improve waterway health
2.20-2.30 (10 min)	Farewell and Depart

Students will need:

- Covered footwear
- Sun safe clothing and hat
- Sunscreen and insect repellent already applied
- Water Bottle
- Morning Tea and Lunch
- Field booklet, Clipboard, Pencil

Litter Free Lunch

We encourage students and staff to pack a litter free lunch. A litter free lunch contains no throwaway packaging. Everything in it can either be re-used, composted or recycled. Therefore food is brought in re-usable containers rather than disposable plastic wrap. Drinks are brought in refillable plastic bottles. Pre-packaged foods are discouraged.

