Itinerary: Forest Studies

Toohey Forest Environmental Education Centre

Learning Goal:

To collect distribution and abundance data of plant species in order to analyse data and evaluate the efficacy of methodologies and techniques within Toohey Forest.

Students will:

- **recognise** that biodiversity includes the diversity of species and ecosystems
- **determine** the diversity of plant species in a human impacted and natural sclerophyll forest ecosystem using Simpson's Diversity Index as a measure of species richness and evenness (relative species abundance) and a forest condition score as a measure of forest health
- **use** a variety of appropriate technologies, such as Vernier data loggers, soil pH testing kits, laser range finder to measure canopy height and other equipment to measure abiotic factors in the field
- **analyse** species diversity indices, forest condition scores and abiotic data (soil pH, air temperature, soil temperature, soil moisture, humidity and light intensity) to compare ecosystems across spatial and temporal scales
- **explain** how environmental factors limit the distribution and abundance of species in an ecosystem
- **Use** fieldwork to develop scientific skills and collect data, as well as to develop student understanding of concepts, especially abiotic–biotic relationships and biotic–biotic relationships in a forest setting
- **evaluate** the condition of forest ecosystems using data collected from the field
- **Use** the Lincoln Index to estimate population size from secondary or primary data

Inspiring Science beyond the classroom

Time	Activity
9.00–9.20am (20 min)	**Introduction to staff, program and facilities**
9.20–10.00am (40 min)	**Plant Identification:** *Samples of local native plants identified using Plant ID booklet*
10.00–10.10am (10 min)	**Toilet and drink break (10min Only)**
10.10am–12.00pm (1hr 50 min)	**Group Roles:** *Discussion and Allocation of Quadrats* **Disturbed vs Undisturbed Sampling — 2 quadrats:** *plant abundance; vertical plant heights, recording of abiotic data (e.g. temperature, light, pH, soil composition and moisture etc)*
12.00–12.30pm (30 min)	**Lunch** *Visiting teacher to supervise completion of field booklets through data sharing*
12.30-1.30pm (1 hr)	**Simpsons Diversity Index & Vegetation Profile:** *Calculate Simpsons Diversity Index and Forest Condition Score from the data collected at the two areas* *Create a Vegetation profile from data collected*
1.30–1.45pm (15 min)	**Toilet and drink/snack break (15min Only)**
1.45-2.25pm (40 min)	**Lincoln Index Activity:** *Estimate animal population size from primary data collected in a simulated activity* *Use the Lincoln index to help make biomass estimates of animals within Toohey Forest*
2.25-2.30pm (5 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.

Queensland Government