

# OVERVIEW



## Moreton Bay Studies

## Years 11 & 12 Program

### Biology – Unit 3 Biodiversity and the interconnectedness of life

*Moreton Bay Studies* is a day program supporting completion of the mandatory practicals from Unit 3, Biodiversity and the interconnectedness of life. Students, in the role of biologists, use a stratified sampling process to conduct an ecological survey of sites in Moreton Bay.

Studies, primarily focused on the marine ecosystems around Green and St Helena Islands, include:

- Determination of species diversity using Simpson's diversity index across two spatially variant sites
- Investigation of environmental factors limiting the distribution and abundance of species in an ecosystem
- Interpretation of data to classify and name an ecosystem
- Evaluation of strengths and limitations of data collection methodologies to appraise the ecological survey techniques used
- Applying data analysis techniques to identify relationships in the data and test for statistical significance of the effects
- Communication of experimental findings about ecosystem dynamics using graphical techniques including standard error bars

This fieldwork requires students to utilise:

- Techniques for identifying organisms (e.g. keys and field guides)
- Sampling techniques e.g. BRUV, underwater video glider (transect)
- Methods to measure abiotic data (including salinity, temperature and availability of light)

Pre-program resources introduce students to the study context and methodologies.

Post-program support includes exemplars to continue data analysis. Access to the Moreton Bay EEC complete data set is available. This allows students to formulate a modified research question and select their own data to analyse. Students are able to extend the investigation enabling completion of IA2: Student experiment. Data collected is added to our longitudinal data set and shared with agencies managing Moreton Bay.

### Curriculum Intent

#### Biology

Unit 3 Biodiversity and the interconnectedness of life - students will collect data using sampling methodologies to support completion of the mandatory practicals from Unit 3.

- Determine species diversity of a group of organisms based on a given index
- Use the process of stratified sampling to collect and analyse primary biotic and abiotic field data to classify an ecosystem
- Select and appraise an ecological surveying technique to analyse species diversity between two spatially variant ecosystems of the same classification

IA1: Data test - data is available to assist with the formulation of this assessment.

IA2: Student experiment - students complete the primary data collection and then create a research question to modify the experiment.

