

BOOKING

STAGE 6

Biology Ecosystem Dynamics

Location: Bateau Bay or Copacabana Rock Platform.

Students will use an inquiry leaning model to investigate the population dynamics of local ecosystems and determine relationships between biotic and abiotic factors in an ecosystem. The future of ecosystems will also be examined with discussions of management options and the perspective of stakeholders.

Field work activities include:

- use of transects and quadrats to measure distribution and abundance of plants and animals
- wildlife observation with reference to field guides and identification APPS
- measurement of physical and chemical abiotic influences
- observations of predation, competition and symbiotic relationships amongst local ecosystem species
- practical observations and discussion of adaptations of plant and animal species
- discussion of environmental pressures that promote a change in species diversity and abundance

Field work could also include a microplastics investigation.



SPECIAL PROGRAMS

STAGE 6

Earth & Environmental Science - Introduced Species

Location: Strickland State Forest.

An investigation of introduced species and their impact on ecosystems.

Field work activities include:

- use of quadrat sampling techniques to compare a lantana infested area and a natural rainforest;
- measurements of abiotic factors to account for impacts of lantana
- surveys of introduced animal species such as Mosquito Fish and Bell Birds
- assessment of the impact of introduced species on the rainforest environment
- discussion of control and mitigation of introduced species at Strickland Forest and
- water quality testing and discussion of how human activity can influence the availability and quality of water

Depth Study Support

Participation in our Stage 6 field work programs could contribute **four hours** to student Depth Study Investigations. Pre and post visit resources and links will be provided to further support students in their area of interest.

Cost: \$5 per student, up to 60 students

Book on line at

www.rumbalara-e.schools.nsw.edu.au/



Rumbalara Environmental Education Centre

Science Programs 2019



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**Education
Public Schools**



2019 FIELDWORK PROGRAMS SCIENCE

STAGE 4 - Earth & Space Environments Through Time

Geology of the Central Coast revealed through an examination of rock strata and fossil sites. Investigation of fossils and geology at Norah Head, Mulbring and Catherine Hill Bay.

STAGE 4 & 5 Living World

Students apply fieldwork skills to measure and describe the characteristics of an ecosystem, identify foodwebs and observe the adaptations of organisms. Includes the use of scientific instruments, sampling techniques and classification keys. Programs available for wetlands, rock platforms or estuaries. Possible locations include Bateau Bay, Porters Creek Wetland, Wamberal Lagoon.

STAGE 4 - Energy Physical World

Invite Rumbalara's 'Bright Sparks' energy trailer to your school. It's full of exciting, hands-on activities promoting scientific curiosity and the search for alternative energy solutions. Investigate solar panels, wind turbines, solar thermal and sustainable building.

STAGE 5

Marine and Aquaculture Technology

Location: Bateau Bay Rock Platform/ Bensville Wetlands/ Coastal Lagoons.

Conduct primary research on the environmental conditions that have shaped adaptations and the patterns of life on rock platforms, beaches, estuaries and coastal lagoons. There is a focus on the sustainable management of these popular places. Can be conducted at many locations depending on your special focus - fish, invertebrates, birds.

Coastal lagoon field work can include a scientific investigation of microplastics in the environment using transects and quadrats. Microplastics can be viewed with a digital microscope and types of plastics will be classified into size and type. Possible sources and solutions to microplastics will be discussed.



STAGE 6

Investigating Science - Cause & Effect (Microplastics)

Location: One of the four Coastal Lagoons - Terrigal, Wamberal, Avoca or Copacabana.

This program will focus on microplastics and include a practical investigation that will collect a range of qualitative and quantitative primary data on the impact of microplastics on our coastal lagoons.

Field work activities include:

- use of a transect and quadrat to collect data;
- classification of microplastics into size classes and polymer types
- collecting data on macroplastics & litter
- conducting water quality testing to identify other sources of pollution
- discussion of impacts and sources of microplastics in the local area

