

Sample Three-Day Gifted and Talented Programme

Please have own cut lunch and a drink bottle with water (brain juice!)

Warm clothing and weatherproof jacket are needed and closed toe footwear is compulsory in the laboratory.

Hot water is available if students wish to bring cup-a-soup for lunch. We will supply morning and afternoon teas.

DAY ONE

9:00 am

Students arrive at the New Zealand Marine Studies Centre

-Welcome & introductions.

-Brief over view and outline of programme with reference to and brief interpretation of the theme and the focus topic areas

“Making sense of the marine environment enables survival and enriches lives”.

-A thinking web.

-PowerPoint on Humans and the Global Marine Environment.

-Science and teams—forming enquiry teams.

9:45 am-10:45 am

Using and extending our senses in marine science.

-In the laboratory we test our senses on abiotic parameters (light, temperature, salinity, oxygen) of the marine environment. An introduction to some basic instrument use and the potential for error and limitations.

10:45 am

Morning tea.

11:00 am-12:30 pm

Laboratory Challenge.

-Creating an investigation (echinoderms as bio-indicators and the background to experimental protocol).

-Linking to survival and enrichment.

-Review and critique of mini investigations.

12:30 pm

Lunch.

1:00 pm-1:50 pm

Marine Animal Senses

-In the teaching laboratory we do comparative dissections of fish and squid.

-A look into sensory organs, nerves and brains.

-Making some comparisons to our own senses and brain.

1:50 pm-3:20 pm

On board the **Research Vessel Polaris (if available)**.

-Search and research. We look at ways marine scientists and those that work with them use and extend their senses at sea. Various instruments are used to catch, collect, to make conscious, to compare, to compute, to critique, to communicate, to create.

3:20 pm-3:50 pm

Team Sensory Challenge

-4 test stations for teams to solve problems:

Photoreceptor and mechanoreceptor challenge.

(Auditory) mechanoreceptor challenge.

Instrument use challenge.

Chemoreceptor (taste) challenge.

4:00 pm

Depart NZMSC

DAY TWO

9:00 am

Information—Qualitative and quantitative data

-Reliability of the data.

9:30 am

A Coastal Marine Ecosystems Survey (**depends on tides and location**)

-Sample survey areas:

-Macrofauna distribution in Papanui inlet.

-Cockle population studies at Harwood.

-Sheltered rocky shore compared to exposed rocky shore.

-Intertidal crab species surveys.

11:30 am

Analysing data and review of field investigation.

12:30 pm

Lunch break.

1:00 pm

Post graduate mentors introduce themselves and the project areas.

1:30 pm

With post graduate mentors in small enquiry teams:

-Design and carry out a small investigation into some aspect of marine invertebrate behaviours.

-Possible areas of practical investigation depend on the available staff expertise. Some examples are:

-Epibionts on bivalve shellfish.

- Mud whelk feeding behaviours.
- Sea star predation of bivalves.
- Predator avoidance in paua.
- Cancer crab feeding.
- Substrate preference in shore crabs.
- Nematode worms.

3:00 pm

Afternoon tea.

3:20 pm

Continue with investigations.

- Prepare short team presentation on the investigation.

4:10 pm

Teams report to whole group on their investigation.

4:30 pm

Depart NZMSC.

DAY THREE

9:00 am

Information:

- Reliability (again), synthesis and application with introduction to simple qualitative modelling.

9:30 am

Teams collect data from overnight experiments or collect more data from their investigation.

- Morning tea as it fits in with the work.

12:00 pm

Cleanup.

12:30 pm

Lunch.

1:00 pm

Communication –some possible ways to get the message/information across.

- Teams finish analysis and work on their presentation of their mini projects.

3:30 pm

Afternoon tea.

- Team presentations.

4:10 pm

A final review.

4:30 pm

Depart NZMSC.

Notes:

Cost – Price on enquiry – depends on how many hours programme runs.

Plus additional cost of the RV “Polaris” (if used).

Plus additional cost of the Marine Science vans (if they are used for field studies).

Availability of “Polaris” depends on other Marine Science departmental needs at the time.

Minimum group size is 10.

Worksheets – Where relevant, and if desired, will be provided.

Teams – Most activities and challenges will be done as small cooperative and collaborative teams of 4 or 5.

Students should bring – pencils, pens, (a clipboard if you have one).

Food – Please bring packed lunches. A lunchroom and kitchen are available. We are able to supply mugs and hot water.

Appropriate Clothing – It is essential that **students do not wear open-toed footwear in the laboratory. Warm weatherproof jacket/parka will be needed on the shore and boat (if used).**

Please note this programme with second day field study needs low tide in morning. Availability of RV Polaris depends on Marine Science Department bookings at the time.

It is possible to run a modified programme without these particular activities. Please make enquiry to discuss.

If you are bringing a group from out of the Dunedin area, you may wish to consider overnight programme additions (see TWO AND THREE DAY PROGRAMMES WITH FACILITATED EVENING PROGRAMMES) or arranging your own accommodation on Quarantine Island (03 4780 874).

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