

Lab Notes - for Teachers

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Ecology Diary

Study ecology through field and laboratory work (example - Crab Ecology Diary).

What you need:

- An expert (ideally students interact with a practicing scientist)
- Appropriate equipment for collecting samples eg. buckets (at least one per group), jars etc
- Reference material eg. field guides for species identification
- Measuring equipment eg. callipers (1 per group)
- A storage and filing system for data
- Display stationery eg. coloured paper
- Camera and film (optional).

Desired Outcomes

Students:

- Apply scientific skills and become more environmentally aware:
- Link with scientists working in the field so they gain an understanding of science as a potential career:
- Contribute scientific data for use by relevant organisations.

Time frame

Approximately 6-8 weeks

Audience

Years 8 and 9 students with a half day field trip each week

Applications

Students could study any type of small organism which can be readily collected and handled (before being returned to its environment), and about which the students have limited knowledge. Environments may include rain forest, woodland, coastal or agricultural ecosystems.

Getting Started

Students may be withdrawn from regular classes or the project could operate as an elective unit. Students should have access to, and be required to interact with experts in the field, outside the school environment. 15 - 18 students (groups of 3) is ideal.

Planning (October/November):

Investigate possible facilities and the programs they offer. Consider cost, times and staff available. Investigate how the project is to be financed and check staffing and timetable constraints.

Preparation (December):

Make arrangements with relevant organisation. Draft letter of invitation to selected students. Inform school community about program.

Preparation (February):

Confirm arrangements with scientific organisation. Distribute letters of invitation to students and obtain parental consent for student participation. Finalise specific goals and requirements of the program. Conduct an information session for students and parents.

Program (6-8 weeks):

The expert provides guidance in the application of scientific method to the study of ecology. For suggested activities, see the Crab Ecology Diary (below). Data should be made available to the relevant facility.

Evaluation (1-2 weeks):

Discuss project with students. Meet with subject teachers to evaluate outcomes for students in timetabled classes. Assess student response through expressions of interest in future participation and subject selection.

Contacts

Useful starting points may be:

- Nearest office of the Department of Conservation and Land Management (CALM):
- National/State Park staff eg rangers, field officers:
- Local educational/tourist facilities.

Tips

- Allow for costs of travel and use of facilities, photocopying, phone calls and other correspondence.
- This is particularly appropriate for Year 8/9 girls as it is at this age girls are most vulnerable to factors which

discourage them from pursuing science. Girls also tend to have less access to equipment and teacher time in mixed classroom situations.

- Parents could be invited to participate in field trips.

Example - Crab Ecology Diary

Nicole - Year 9

WEEK 1:

We visited Swan Bay and met the scientists at the Discovery Centre. We learnt to handle crabs and use callipers and balances (for measuring their length and weight) and drew a map, took photos of the area, and recorded features of the crabs' habitat. We learnt how to use a key to classify crabs and determine their gender. We were told that we would study the main species, the Smooth Pebble crab, then talked about why it was important not to interfere with the crabs and their environment.

WEEK 2:

Our group was given an area. We had to find and measure all the Smooth Pebble crabs, record their sex, number of walking legs, celipeds and other features, mark where we found them on our maps, then let them go. We also identified and recorded other crabs, weather and tidal conditions.

WEEK 3:

We did a field survey (like Week 2) to test the hypotheses that 'Smooth Pebble crabs are found in all microhabitats', and that 'Soldier crabs are only found in the mud, and recorded our results.

WEEK 4:

First we did an experiment at the Discovery Centre to see whether crabs prefer pippies or prawns as food. Then we had to design and do an experiment to test the hypothesis that 'male Smooth Pebble crabs are not territorial in the presence of a female'. We will write up the reports for homework.

WEEK 5:

We put all our data from the survey together and analysed the results. We found that our hypotheses were supported, but that we were

more likely to find Smooth Pebble crabs in the mud than anywhere else. Four of the Centre's female scientists spoke to us about their work and our possible future careers in science. They mentioned some careers I hadn't even thought of before. We started work on our final report, which we will present to the scientists at the Discovery Centre in four weeks, and the display for presentation night. We also have to report back to our science classes.



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