

I come from Inland and wasn't taught anything in school,
so now -----WoW!"

An integrated approach to running a University based withdrawal programme for gifted students. Part one: Principles and Practice.

By Steve Cutler. Educator, New Zealand Marine Studies Centre . University of Otago

This article is an expansion on a workshop delivered at the 10th Asia-pacific conference on giftedness, Singapore July 2008.

Introduction

What is the New Zealand Marine Studies Centre?

The New Zealand Marine Studies Centre (NZMSC) is a unique educational facility located on the shores of Otago Harbour, just 30 minutes from the centre of Dunedin, On the east coast of New Zealand's South Island. The Centre is part of the University of Otago that operates in association with the adjacent research facility, the Portobello Marine Laboratory. The facilities of the NZMSC include lecture rooms, a teaching laboratory with running seawater and associated microscopes and scientific equipment and an Aquarium. Combined with the facilities of the Portobello Marine Laboratory, the Research Vessel *Polaris II*, and the immediate marine environment, it creates a unique Centre for student learning. In addition, the NZMSC has access to extensive human resources through the scientists, graduate students and technical staff of the Department of Marine Science.

The NZMSC has a long history in delivering learning experiences that cater for mainstream curriculum and assessment needs of primary and secondary schools through LEOTC (Learning Experiences Outside The Classroom) contracts with the Ministry of Education (Appendix 1). The Portobello programme caters for schools in the southern half of the south island. While our outreach programme in Nelson caters for schools in the Tasman, Nelson and Marlborough regions. Students from early primary to senior secondary level have the opportunity to learn about a range of marine topics and issues through "hands-on" experiences with live organisms in natural habitats. They find out what marine scientist do as well as have the opportunity to design and carry out their own investigations and make their own observations. Our programme currently includes three-day block programmes for senior students where we facilitate and support individually negotiated student enquiries.

It is this experience with delivering education that provides the foundation of our Talent Development Initiatives (TDI) programmes for gifted learners.

What principles of gifted education underpin the TDI programmes?

Identification

There are many methods of identification of the gifted. NZ Ministry of Education(2000) booklet outlines principles to guide process :

- unobtrusively embedding identification within the class room
- employing multiple methods appropriate to different domains of giftedness
- communicate with the school community
- school wide team approach to identification which includes parents and extended family.
- ensuring identification of the under-represented or hidden, minority groups, underachievers, students with disabilities or from lower socio-economic groups

We ask for a minimum of 3 different means of identification to be used in selecting potential participants.

methods may include :

- teacher observation and nomination
- rating scales
- standardised testing
- portfolios, performances and auditions
- parent , caregiver and extended family nomination
- peer nomination
- self nomination
- profiles (J. Smith suggests profile identification developed by Betts and Neihart)

We also make it clear to teachers and schools that participants don't need to be gifted in science. We have had very gifted musicians, writers, and individuals with a range of talents who contribute and gain a considerable amount from working on these programmes with others of "like-mind".

Design

The guiding principles, for the design of our gifted programmes, are focused on the particular needs of the learners:

- broad based theme/s
 - integration of multiple disciplines
 - comprehensive, related and mutually reinforcing
 - in-depth learning of specific topics
 - incorporates self selected and directed study
 - focus leads to application, analysis and synthesis
 - involves a variety of techniques, materials and forms
 - facilitates the development of self understanding
- (US Curriculum Council of the National Leadership training Institute on the Gifted and Talented, 1986)

The separate class/all-day/residential model - particularly for those with both learning difficulties and identified as gifted - has a number of advantages (Riley T. et. al., 2004). Advantages include:

- elimination of disjunction and lack of continuity in pursuing a particular area of interest/enquiry.
- better suited to meet students emotional needs (self knowledge, self esteem, motivation).
- better accessibility to expertise in the particular themes/ enquiries pursued
- opportunity for small numbers from small schools to meet and work with like minds

This last point is emphasised in the original working party report to the NZ Minister of Education (Trevor Mallard) Core principles for gifted education in New Zealand- “It is very important that opportunities are provided for gifted and talented children to spend significant time with others of like ability and interest.” Programmes that bring the gifted and talented together on an ongoing basis and/or over a period of time address this and some of the issues of specific social and emotional needs referred to in the principles underpinning New Zealand’s gifted and talented education policy (McDonough and Rutherford, 2004)

These principles were given almost over-riding emphasis by Linda Silverman in her talk given at the gifted conference in Christchurch in 1999. In the conference papers she refers to the work of W.C. Roedell who studied the social development of gifted children. “ she (*Roedell*) stresses the immense importance of true peers and suggests that a major function of programmes for highly gifted children is to help them discover their true peers at an early age.”

The Ministry of Education document “the extent, nature and effectiveness of planned approaches in New Zealand schools for gifted and talented students” (July 2004) states that:

“ both acceleration and enrichment have potential advantages and disadvantages, and it is now widely recognised that the two should be used in tandem, as complementary approaches to a qualitatively differentiated education.”

This document recognized the strong focus that case study schools gave to development and implementation of programmes outside the regular classroom.

This document also suggests the use of

- Integrated curriculum pulled together by over-arching broad-based conceptual themes
- small group or independent study through teacher guidance in topic selection, investigation planning, goal setting, and presentation of discoveries.
- withdrawal programme of special classes with other gifted and talented students
- liaison with universities to provide interesting and appropriately challenging programmes

What informs the structural framework?

Both the Enrichment Triad Model and the Autonomous learner model were used to inform structure and give direction to the programmes and assist the effective application of the key principles.

Developed by Renzulli, the Enrichment Triad Model is perhaps the most widely used curriculum model in gifted education.

Initially intended for primary schools, the model has also been adapted for secondary schools in the Secondary Triad Model ([Reis and Renzulli, 1986](#)). Since the Enrichment Triad Model serves as the base for each of these adaptations, it is more closely examined here.

The model consists of three interrelated types of enrichment:

- * **Type I** – general exploratory activities (enrichment), (this is the nature of the first day and a half of the programme.)
- * **Type II** – group training activities (process) (Aspects of team work , thinking and practice and pilot investigations are built in to the first couple of days and may even extend into the 3 rd day.)
- * **Type III** – individual and small-group investigations of real problems (product). (This is the bulk of the programme as small student research teams, mentored by postgraduate research students, investigate particular aspects of a marine science question.)

The Autonomous Learner model was developed by Betts in 1985

Explanations of segments of model

Orientation gives students and teachers an opportunity to develop a foundation for the programme. (Day one practical and enquiry challenges around the theme)

Individual development serves as a launching pad for giving students the cognitive, emotional, and social skills, and concepts and attitudes they need for lifelong autonomous learning. This dimension is very much process oriented and thus is similar to Renzulli's type II activities. (Nature of Science, team structure and strategies, metacognition, residential responsibilities and activities)

Enrichment activities are designed to allow students to explore a variety of concepts and ideas. Content differentiation is the key element here, mirroring Renzulli's type I enrichment.

In-depth study is the most demanding and challenging dimension of the model, with small groups or individual students being given the freedom to pursue their own areas of interest. Students themselves determine:

- * what they will learn
- * how they will learn it
- * what resources are needed
- * how they will evidence their learning through a self-selected product
- * how they will evaluate the entire learning process.

Seminars serve as an avenue for groups of students to each present a seminar to other students. The seminars are designed to include three components:

- * presentation of factual information
- * group discussion and/or activity
- * bringing closure to the issue.

Students plan, present, and evaluate the seminars, shifting the responsibility for learning from the teacher to themselves. (this is a major component of the programme and is scaffolded into the programme by stages so that by the end the teams are prepared to deliver detailed visual, oral and novel presentations to a public audience)

The In-depth study and seminars mirror Renzulli's Type III

The Programme

Why Marine science as a vehicle for a talent development programme?

For New Zealand there are a number of clear reasons why our gifted learners need to have an in depth experience and understanding of the marine world.

1. Identity- New Zealanders are nowhere far from the sea. We are an island nation with a rich maritime history. Both indigenous peoples and more recent settlers have personal oral and written histories that include ocean voyages, fishing and seashore recreation.
2. Geography- New Zealand is a small island nation in the south pacific. Our maritime climate is influenced by both subtropical currents and subantarctic water masses. We are in the centre of a World of Water!
3. Ecology- We share this space with 10% of the worlds marine biodiversity and participate as part of the complex biological and geophysical systems that ensure our survival.
4. Economy- New Zealand's Exclusive Economic Zone is the 4th Largest in the World. Fishing, aquaculture, eco-tourism and the social capital of recreation are all based on sound marine science linked to careful management.
5. The science- Marine science is multi-disciplinary, multidimensional and full of huge diversity and continual new discovery.
6. The family- no matter how complex the science everyone can communicate and share aspects of their studies with a wide range of people because we all have some personal link and understanding of the sea from which to begin the sharing.

How does the marine Studies centre TDI meet the needs of the gifted student?

We communicate and coordinate with schools to identify suitable students using a range of Identification tools. There are only 2 -3 students accepted from each school for each programme and so students mix with likeminded peers from a diverse range of backgrounds and experience. There are three multi day programmes. There is a programme specifically for students from rural isolated schools (9 days made up of 3 x3day blocks), a programme for students from local Dunedin city schools (8 days, a 2 day block 3 single days and a 3 day block) and a programme for 9 small primary schools around the Otago Harbour(5 single days).

The programmes operate under broad open themes that are used to link ideas, connect to broad interdisciplinary concepts and some times act as analogies for meta-cognitive thinking. For example, the theme used for yr 10 programmes (age 14 years) is

“Making sense of the marine world aids survival and enriches lives.”

This is used to begin generic experiences in the laboratory where participants use their own senses and then instruments to extend their senses to establish a common foundation to a marine understanding. It also links to team laboratory challenges looking at the senses and responses of a range of live marine creatures in relation to survival in the marine world. The sensory lab involving salinity, temperature, light, dissolved oxygen, size and weight, is a key component of this first part of the programme.

Small research teams are put together using detailed information from teachers and the students applications. We aim to have a balance of roles in the teams and to also balance strengths and weaknesses of participants.

These research teams are put with a young postgraduate research student as a mentor. They are given a specific research project area to develop questions, hypotheses and methods to carry out a practical hands-on research into specific real world topics using university facilities and equipment.

Key note talks and presentations on aspects of science, science philosophy, teams, meta-cognition and thinking, data, analysis and modelling, analogy and conceptual development and applications, communication and presentation are used to stimulate and challenge students to be looking and thinking in depth about their learning and problem solving. Mentors are trained to support the development of student thinking and practice by using questioning and modelling the keynote ideas rather than teaching. There is a gradual transition to ownership of the project by the student team.

Each day and the end of each block of 2 or 3 days sees the teams reflect, review and prepare presentations to communicate their work. These presentations introduce the process of peer review and critique as an essential part of science and learning in general. Communication challenges are scaffolded throughout the programme and they include: a press release, a power point with team oral presentation, a mini scientific poster (that can go up on our web site) , and a novel presentation. The idea of the novel presentation challenge is to get the students to think creatively about ways to get across their ideas and project process as well as results to different audiences. Some of the ways they have come up with are, puppet show, TV interview, soap opera, mini drama, song, and clay model figurines acting out. There is also opportunity for use of analogies and lots of humour!

The programmes have major residential components where students stay overnight together (on a nearby island where there is simple lodging). They have different residential teams which share with the cooking and cleaning as well as get involved in challenges designed to be social fun but also interdisciplinary in relation to the broad theme. These are facilitated by a staff member experienced in managing school camps, but teachers and parents from participating schools are also encouraged to help out.

There is a range of sequential programmes enabling experiences for: Year 6-8 (age 10-12 years), year 10 (age 14 years) and year 11 (age 15/16 years).

We have also developed complementary programmes for individual school GATE classes of 1 to 2 days duration for, year 3&4, year 5&6, year 7&8 and year 9&10.

What are the programme management details?

A checklist of key components that enable us to carry out these programmes includes;

- Facilities available, including residential facilities
- A learning culture in the institution delivering the programme
- A key facilitator to oversee scheduling, staffing, staff training, pedagogy etc
- Young enthusiastic and knowledgeable mentors
- Equipment and materials needed for projects
- An administrative structure and personal who are “on board” with the programme.
- Funding

There are a number of important steps to ensuring a smooth programme. These are based on forward planning and lines of communication with schools and staff.

Step one. Scheduling of the programmes begins about 9-10 months out from intended dates. This ensures early booking of facilities, boats, equipment and timely appraisal of staffing needs as well as time for schools to be notified and any major calendar clashes adjusted for. Having a key person in a school to communicate with really helps. This is usually a committed teacher in charge of gifted education in the school or head of science or the guidance counsellor. The important thing is that they respond quickly and advocate for the student/s. Accommodation is booked for residential component of the programme.

Step two. Next staff (post graduate research students in marine science) are advertised for, interviewed and selected. Key characteristics are- availability, passion and enthusiasm for science, an empathy for teaching kids, a love of learning and marine science knowledge (knowledge is not the most important thing here!), experience with practical science research. We specifically target young post grad students to be trained as mentors as the programme participants tell us that:

- a. They find it easier to relate to them.
- b. Their stories of how they have followed different pathways into being a scientist are more relevant to them,
- c. They might have knowledge and expertise to help guide a project but more importantly they are still learning and share in the student learning too.

Step three. We run a Teacher professional development day at the end of each year to share the programme experiences and results and to communicate the next years proposed programme. This day usually includes a key note address by some one with expertise in gifted education and an opportunity for teachers to experience first hand some of the activities student will be involved in.

Step four. Information packs are emailed and hard copies sent to each participating school's contact persons.

These include scheduling of programme, profiles of NZMSC staff involved, template for teacher information on each applicants student profile, application template for potential participants to complete (a simulation of a real world job application). A number of schools have begun using previous student participants in informing and selecting potential new participants.

Step five. Once information is received back from schools and applicants decisions are made on final numbers and research teams are made up using the information provided.

Step six. Early in the year new staff go through some training about gifted students, programme structure and delivery, key note aspects of science, meta-cognition, questioning, mentoring, presentation work and preparation for facilitating the project they will mentor. Staff who have previously been mentors are involved in the shared learning in this process. This planning involves coordination with research laboratory staff.

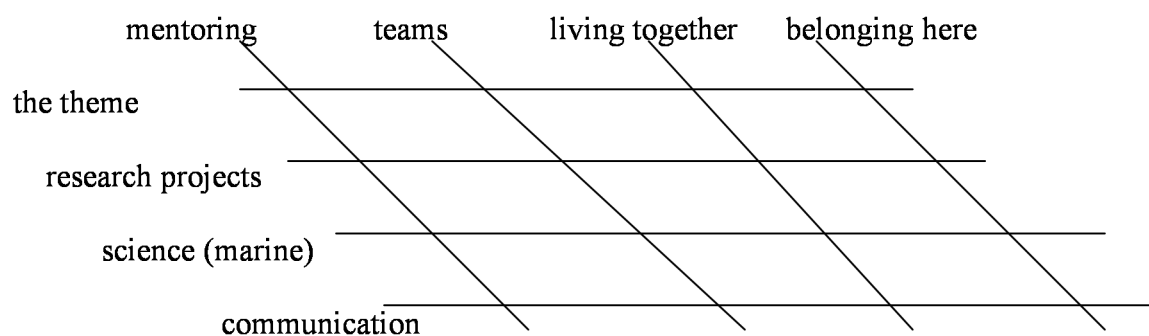
Step seven. Schools and students are then sent detailed itineraries of the programmes, details of the health and safety, gear and equipment, food and accommodation arrangements so that all are prepared for their involvement.

Step eight. Details of residential teams, duty rosters, evening activity challenges etc are drawn up. Any materials/ animals/seaweeds/equipment /presentations etc are collected, prepared . Final staff briefing.

Step nine. Students arrive, welcomed and programme begins!
See appendix for detailed itinerary of 3x 3 day programme.

Step ten. The programme is monitored and evaluated to check on how well we are meeting student needs and our intended outcomes. This process assists with further development. Students, teachers and mentors all have input into this process via questionnaires, interviews and conferencing.

What does the integrated model look like?



Each node on the matrix can be seen as a junction where there is opportunity for facilitating student interaction, learning, thinking and meta-cognition and self discovery.

Conclusion

Over the past three years the talent Development Initiative programmes at the New Zealand Marine Studies Centre have gained an increasing reputation for delivering authentic, real world learning experiences that are enriching and enhancing for gifted students. Teachers tell us that observing and sharing the experience is fascinating and exciting professional development for them, parents are enthused by their sons and daughters returning home fired up about their experience, their research and the friends they are making, schools not in our original pool are requesting opportunity to take part and teachers are keen to book in whole GATE classes to experience some reduced and affordable forms of the programmes. Participating schools now proudly list the programme as an important part of their gifted education strategies in newsletters and parent information brochures. As the quote from one of the 2007 participants (used in the title to this article) shows , the students are often inspired by their experience with us. What better way to represent the impact of the programme on students than WoW! World of Water!

At present the centre is working in conjunction with Dr Tracy Riley of Massey University. NZ, to survey all students, teachers and parents who have been involved in the programme over the past three years. We intend to keep track of our “graduate” participants into the future and look forward to learning about, and from, their successes. We continue to develop the programme as we also continue to learn more about nurturing gifted learners.

More information including templates of the student profile and student application forms, some samples of project mini posters and some sample itineraries of short programmes mentioned in this article can be reached through the web site www.marine.ac.nz

references

McDonough E. and Rutherford J. (2005) New Zealand’s Gifted and talented Policy , Apex Vol.14,No.1

Riley T. Bevan-Brown J. Bicknell B. Carroll-Lind J. and Kearney A. The extent, nature and effectiveness of planned Approaches in New Zealand Schools for providing for gifted and talented Students. Ministry of Education 2004.

Silverman L. Supporting the gifted: Social and emotional needs. “Inside-out: understanding the needs of the gifted” Proceedings of gifted conference 1999. Christchurch College of Education. NZ

"Gifted and Talented, meeting their needs in NZ schools" Ministry of Education 2000.

Bourne J. (2005) "Twice Exceptional: teaching gifted students with learning disabilities in the regular classroom" . Apex Vol.14, No 1

Smith J. "Identification and assessment of gifted potential " “Inside-out: understanding the needs of the gifted” Proceedings of gifted conference 1999. Christchurch College of Education. NZ

"Gifted and Talented, meeting their needs in NZ schools" Ministry of Education 2000.

Riley T. (2005) "looking ahead: research to inform practice in the education of gifted and talented students in New Zealand" Apex vol. 14 No. 1.

Appendix 1.

Detailed Itinerary of a 3x 3 day programme

Rural schools Gifted and talented programme 2008

BLOCK ONE

Day One (Sunday May 25th)

Students should arrive well in time as the schedule is tight.

Please have own cut lunch and a drink bottle with water (brain juice!) Lunch food can be left in the fridge/freezer at the NZMSC kitchen

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-o-soup for lunch . We will supply morning and afternoon teas.

Arrival between 10 and 10:20 am (please be prompt)

Welcome and morning tea

10:30 am

Seminar room

introductions via small starter pack presentations

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 aids survival and enriches lives”

10:50-11:40 am

using and extending our senses in Marine science .In the laboratory we test our senses

on abiotic parameters of the marine environment.

11:40 Marine animal senses

In the teaching **laboratory** we do comparative dissections of fish, squid
A look into sensory organs, and nerves and brains
Making some comparisons to our own senses and brains

12:45-1:15 pm

seminar room
Lunch

1:15- 2:45pm

On board the **Research Vessel Polaris (if available)** we look at ways marine scientists and those that work with them use and extend their senses.. Various tools are used to catch, collect, to make conscious, to compare, to compute, to critique, to communicate, to create.

Concept of distributed cognition
The nature of teams and forming teams

2:45-3:35 pm

Marine animal responses
In teaching **Laboratory** we investigate some behavioural responses of marine animals to particular stimuli.
Mud whelk and chemoreception
Chiton and light
Tube worms and vibrations
Echinoderms and turning over
Making predictions and testing them, steps to scientific investigation Thinking and solving problems. Linking to survival and enrichment

3:35pm afternoon tea

3:50-4:10 pm

Linking it together. Niche-organism-sense-response-survival
(including us!)

Perception maps and modelling

Afternoon tea

4:10 pm- 4:45 pm

Team sensory challenge
In the **multipurpose room** 5 test stations for teams to solve problems

Visual and Tactile challenge
Auditory challenge
Taste challenge
Instrument challenge

“Paua\$100 “ for every point the team makes

4:45-5:15 pm Presentations by each of the research mentors

“Benthic meiofauna as bioindicators of sediment disturbance” with Daniel
“Seaweeds- diversity, distribution and polysaccharide extractions” with Katja
“Crabs- to be seen or not be seen , that is the question” with Anna
“Does sediment size affect composition of macrofaunal communities” with Amy

Teams are reminded of the 4 focus topics and Have some time to share and discuss their strengths and interests and to work out between them a rank order of preference for the focus topics.

5:15 pm The topics are then auctioned off, along with various other distracting items!

5:30 pm Teams meet briefly with their focus tutor to set the scene for the next day

5:45 pm **Depart NZMSC for Quarantine Island**

6:15 pm accommodation is Quarantine Island which is a 5 minute boat ride from the New Zealand Marine Studies Centre wharf.

Gather in the lounge for Introduction and safety talk from resident keeper on the island

Island duty and activities teams and roster of duties

Some Parents/teachers coordinate preparation of evening meal with rostered duty team

While others organise sleeping arrangements and have some free time

7:00 pm evening meal

Duty team does cleanup and dishes after evening meal

8:00pm – 9:30 pm Share your sense of humour

9:30 pm bed time

10:00pm lights out and quiet

Day Two (Monday May 26th)

7:00 am every one up and dressed, breakfast set up and preparation

7:15-7:45 am Breakfast

8:00 am ablutions, cleanup pack

8:30 everyone on the island jetty ready with gear (and appropriate clothing etc)
boat transport across to NZMSC

9:00 am (or before)

students arrive at the New Zealand Marine Studies Centre

Seminar room

Hierarchy of information. Validity and reliability
Qualitative and quantitative data

What IS SCIENCE? Review of the scientific process.

In the Laboratory

Team Investigation challenge:- using half crabs as bioindicators

Review and critique

10:30 am Heading off into Team project practical enquiries

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

There will be some field work and sample collecting for some groups.

Petes group possibly to Papanui inlet, Ruth to St Clair. Michelline and Amy making use of the Nauplius and van.

Low tide Portobello of 0.5m at 1400 hours

seminar room/multipurpose room

Lunch as and when it fits in

continue with practical investigations

3:30 pm finish off and clean-up

3:45 pm afternoon tea

4:00 pm

Each group conferences with mentor to review the day in terms of the project, tasks, team, thinking strategies.

The draft of a 200 word press release is written by the team . See “you and the Media “ tip sheet

4:45 pm depart from NZMSC for quarantine island

5:15pm there may be an opportunity for an interpretive guided tour of the island and some of its history

6:00 pm Duty team on coordinated preparation of evening meal

7:00 pm evening meal

Duty team does cleanup and dishes after evening meal

8:00pm – 9:30 pm team quiz challenge. A broad selection of questions based on everything covered so far!

9:30 pm bed time

10:00pm lights out and quiet

Day Three (Tuesday May 27th)

6:30 am every one up and dressed, Pack all gear ready to go home. breakfast set up and preparation

7:00-7:30am Breakfast
clean up breakfast finish clearing out rooms ready for cleanup

7:45 am ablutions, final cleanup

8:15 everyone on the island jetty ready with gear (and appropriate clothing etc)
boat transport across to NZMSC

9:00 am
students arrive at the New Zealand Marine Studies Centre
Seminar room

Heading off into practical enquiry

There may be more field work and sample collecting for some groups.
Petes group possibly to Papanui inlet, Ruth to St Clair. Michelline and Amy making use of the Nauplius and van.

10:30-11:00 am take morning tea as it fits in with the work

continue with practical investigations

Lunch as it fits in

continue with practical investigations

1:30 pm finish off and clean-up
Prepare brief team oral presentation with:
Block 1 communication challenges

- a. at least 4 digital images of project team at work and project in progress
- b. team oral presentation of question/s, hypothesis, method, action so far and next directions (images and oral can be presented to everyone at the same time.)
- c. Short written “Press release” about the team and the project (no more than 200 words)

2:00 pm Seminar room brief report from each group.(5 minutes per group)

2:45 pm team conferences with mentor and reviews project and team work so far

Each individual negotiates an ongoing enquiry or task with their group and mentor

Contact details are collected and shared

3:00 pm afternoon tea

3:15 pm Depart NZMSC

(see you all again at the second block on 26th 27th and 28th June)

Rural schools Gifted and talented programme 2008

BLOCK TWO

Day four (Thursday 26 June)

Students should arrive well in time as the schedule is tight.

Please have own cut lunch and a drink bottle with water (brain juice!) Lunch food can be left in the fridge/freezer at the NZMSC kitchen

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-o-soup for lunch . We will supply morning and afternoon teas.

Arrival between 10 and 10:20 am (please be prompt)

Welcome and morning tea

10:30 am

Seminar room

Reminder of the theme

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

presentation challenges for the end of this block.

Arrangements for end of day reviews

How do we think?-thinking about thinking

Using conceptualisation and analogy to extend, connect, explain and apply.

11:00 am

Heading off into Team project practical enquiries

There may be some field work and sample collecting for some groups.

Low tide Portobello of 0.4m at 1500 hours

seminar room/multipurpose room

Lunch as and when it fits in

continue with practical investigations

3:30 pm finish off and clean-up

3:45 pm afternoon tea

4:00 pm

Each group conferences with another mentor to review the day and the project and team strategies so far in terms of the project, team tasks, science, thinking strategies.

Each student fills in a PNI survey

**4:45 pm depart from NZMSC for quarantine island
gather in lounge for briefing on island teams and the duties.**

6:00 pm Duty team on coordinated preparation of evening meal

7:00 pm evening meal

Duty team does cleanup and dishes after evening meal

8:00pm – 9:30 pm team marine creature features challenge.

9:30 pm supper

10:00pm Bedtime, lights out and quiet

Day Five (Friday 27th June)

7:00 am every one up and dressed, breakfast set up and preparation

7:15-7:45 am Breakfast

8:00 am ablutions, cleanup pack

8:30 everyone on the island jetty ready with gear (and appropriate clothing etc)
boat transport across to NZMSC

9:00 am (or before)

students arrive at the New Zealand Marine Studies Centre

Seminar room

Some useful metacognitive tools. Thinking strategies, useful questions to ask to help think about thinking.

10:00 am Heading off into Team project practical enquiries

seminar room/multipurpose room

Lunch as and when it fits in

continue with practical investigations

3:30 pm finish off and clean-up

3:45 pm afternoon tea

4:00 pm

Each group conferences with another mentor to review the day in terms of the project, tasks, team, thinking strategies.

4:45 pm depart from NZMSC for quarantine island

free time if you are not on a duty—check with steve if you are leaving the building

6:00 pm Duty team on coordinated preparation of evening meal

7:00 pm evening meal

Duty team does cleanup and dishes after evening meal

8:00pm – 9:30 pm team mythical marine marvel challenge.

9:30 pm supper time

10:00pm bedtime lights out and quiet

Day Six (Saturday 28th June)

6:30 am every one up and dressed, Pack all gear ready to go home. breakfast set up and preparation

7:00-7:30am Breakfast

clean up breakfast finish clearing out rooms ready for cleanup

7:45 am ablutions, final cleanup

8:15 everyone on the island jetty ready with gear (and appropriate clothing etc)
boat transport across to NZMSC

9:00 am

students arrive at the New Zealand Marine Studies Centre
Seminar room

Elements of an effective Ppt presentation (using model ppt, on research into the effect of arousal on simple cognitive performance)

Heading off into practical enquiry

10:30-11:00 am take morning tea as it fits in with the work
continue with practical investigations

Lunch as it fits in
continue with practical investigations

1:00 pm finish off and clean-up
Prepare brief team oral presentation with:
Block 2 communication challenges

- a. at least 4 digital images of project team at work and project in progress
- b. team oral presentation of question/s, hypothesis, method, action so far and next directions (images and oral can be presented to everyone at the same time.)
- c. Preliminary planning of mini scientific poster covering steps in the investigation so far

- d. Short Novel team presentation involving all the team
(no more than 3 minutes)
possibilities include—TV interview
radio interview or play
drama, ballet , opera!!
Interactive game
Other ??

Refer to previous tips to aid this

2:00 pm Seminar room brief report from each group.(5 minutes per group)

2:45 pm team conferences with mentor and reviews project and team work so far

Each individual negotiates an ongoing enquiry or task with their group and mentor

Contact details are collected and shared

3:15 pm afternoon tea

3:30 pm Depart NZMSC
(see you all again at the third block on 31st July,1st,2nd August)

Rural schools Gifted and talented programme 2008

BLOCK THREE

Day seven (Thursday 31st July)

Students should arrive well in time as the schedule is tight.

Please have own cut lunch and a drink bottle with water (brain juice!) Lunch food can be left in the fridge/freezer at the NZMSC kitchen

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-o-soup for lunch . We will supply morning and afternoon teas.

Arrival between 10 and 10:20 am (please be prompt)

Welcome and morning tea

10:30 am

Seminar room

Reminder of the theme

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

presentation challenges for the end of this block.

Arrangements for end of day reviews

Introduction of Helen , Turoa and Daniel

11:00 am

Heading off into Team project practical enquiries

There may be some field work and sample collecting for some groups.

Low tide Portobello of 0.4m at 1500 hours

seminar room/multipurpose room

Lunch as and when it fits in

continue with practical investigations

3:30 pm finish off and clean-up

afternoon tea and presentations of practice Novel presentation

4:45 pm

Each group conferences with another mentor to review the day and the project and team strategies so far in terms of the project, team tasks, science , thinking strategies.

**5:15 pm depart from NZMSC for quarantine island
gather in lounge for briefing on island teams and the duties.**

6:00 pm Duty team on coordinated preparation of evening meal

7:00 pm evening meal

Duty team does cleanup and dishes after evening meal

8:00pm – 9:30 pm team cryptic clue orienteering challenge.

9:30 pm supper

10:00pm Bedtime, lights out and quiet

Day eight (Friday 1st August)

7:00 am every one up and dressed, breakfast set up and preparation

7:15-7:45 am Breakfast

8:00 am ablutions, cleanup pack

8:30 everyone on the island jetty ready with gear (and appropriate clothing etc)
boat transport across to NZMSC

9:00 am (or before)

students arrive at the New Zealand Marine Studies Centre
Seminar room

More Mapping and modelling.
“mind maps”, qualitative modelling,
using some ideas on brains and brain function

9:30 am Heading off into Team project practical enquiries/and/presentations
work

seminar room/multipurpose room

Lunch as and when it fits in

continue with practical investigations

**3:00 pm set up for the visit of Hon. Pete Hodgson , Minister of Research Science
and Technology**

Erin with shark group dissecting in the lab

Pete with cockle team doing cockle crushing in lab

Ruth with seaweed team in cave doing Ph/DO measurements

**Amy with Sediment team doing sample ID and analysis (with
microscopes?) in the sediment /lab**

**Michelline with bioindicators team either or both of doing seastar turnover
tests in the lab / inoculation or plate counts in embryology lab
(preferably both ?)**

**4:00pm to 5:00pm The Minister visits,
welcome and introduction to mentors and to Daniel, Turoa and Helen**

minister is escorted around the various project activities.

**When the Minister has passed on from your group you can packup and clean up
and head up to seminar room to work on presentation stuff.**

5:00 pm practice presentations, ppt and oral– 10 minutes per group

6:00 pm depart from NZMSC for quarantine island

free time if you are not on a duty—check with steve if you are leaving the building

Duty team on coordinated preparation of evening meal

7:15 pm evening meal

Duty team does cleanup and dishes after evening meal

8:00pm – 10:00 pm team Sea Animal Olympics challenge.

supper time

10:30pm bedtime lights out and quiet

Day Nine (Saturday 2nd August)

6:30 am every one up and dressed, Pack all gear ready to go home. breakfast set up and preparation

7:00-7:30am Breakfast
clean up breakfast finish clearing out rooms ready for cleanup

7:45 am ablutions, final cleanup

8:15 everyone on the island jetty ready with gear (and appropriate clothing etc)
boat transport across to NZMSC

9:00 am
students arrive at the New Zealand Marine Studies Centre
Seminar room

Reminders of final presentation challenges
Individual survey forms

Heading off into practical enquiry/and / presentations work and practice

10:30-11:00 am take morning tea as it fits in with the work

continue with work

Lunch as it fits in

continue with work

1:00 pm finish off and clean-up

set up for team presentations with:

--a. Full ppt presentation with all team involved in oral support of the presentation who, what, where, how etc question/s, hypothesis, method, action results, conclusions and discussion, so what ? implications, applications.

c. mini scientific poster (as ppt slide or pdf file or doc)

d. Short Novel team presentation involving all the team

(no more than 3 minutes)

possibilities include—TV interview

radio interview or play

drama,

ballet ,

opera!!

Interactive game

Puppets

Story book

Other ??

Refer to previous tips to aid this

1:30 pm PRESENTATIONS

All parents/teachers family and friends welcome!

3:00 pm team , Final conferencing with mentor and review project and programme.

3:30 pm afternoon tea

Farewell!

Depart NZMSC