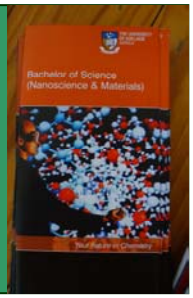
Australian Government
Australian Research Council

Australian Research Council
Nanotechnology Network

ARCNN Young Ambassador Award
Summary Report
2006
Kelly Bailey
South Australia



The Australian Research Council's Nanotechnology Network involves a large number of scientific researchers from around Australia engaged in the interdisciplinary field of Nanotechnology. One of the aims of the Network involves promoting public awareness and understanding of this new and exciting field through interaction with the wider community.

An important aspect of this involves promoting scientific research and providing information to the next generation of scientists coming through secondary school. This is hoped to be achieved through school visits where young research scientists go to schools to talk about their experiences as well as give a demonstration of practical aspects of nanotechnology to give students an insight and appreciation of the field of nanotechnology.

The visits this year consisted of an introductory talk about nanotechnology and the various scientific disciplines and applications that are involved. This talk also included information about tertiary education and scientific career pathways available. This was followed by a demonstration using "Memory Metal". This "smart" material is a nickel-titanium alloy that has the capability to sense changes in the environment and respond to the changes in a pre-programmed way. The sessions ended with a short period of time when students could take a closer look at the demonstration, answer a questionnaire from displayed posters, and ask me any questions relating to nanotechnology or careers in science. The duration of the visit was between 45 minutes and an hour.

The aims of the visits were to:

- Introduce students to nanotechnology
- Encourage students to consider careers in science
- Highlight the need for scientific understanding of new technologies such as nanotechnology within the wider community
- Demonstrate a practical aspect of nanotechnology using "memory metal' (NiTi)


Five schools in South Australia were involved in the visits, and I estimate I was able to interact with over 250 students altogether. Along with the talks and demonstrations the students were also given "showbags" containing information from universities in Adelaide about options for further education.

I believe one improvement for the program next year would be to hold it earlier in the year to enable the involvement of year 12 students who are busy with exams at this time of year.

The response from both students and teachers was positive and I was well received at all the schools visited. Points in particular that were noted were:

- Comment was made that students were able to easily relate to the young visiting researcher and that this helped move away from the stereotypical scientist image

- The interactive nature of the visit was well received by all students including those not interested in pursuing scientific study

- The layout of the visit including both the presentations and the demonstration gave the students an informative but fun experience

I'd like to thank the Australian Research Council Nanotechnology Network for providing an award such as the ARCNN Young Nanotechnology Ambassador Award, which has enabled me to develop my skills in science communication, and additionally has provided school students with an informative and interactive science experience.

Kelly Bailey
ARCNN Young Nanotechnology Ambassador 2006

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Review of Nanotechnology School Visits 2006
ARCNN Young Ambassador Award
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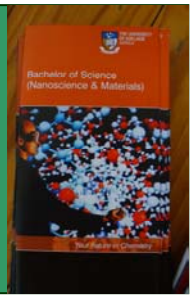


Program of visits:

Talk with PowerPoint presentation-
Introduction to who I am and my educational pathway; explanation of Nanotechnology; introduction to related University courses and science careers (15-20 minutes)
Include questions for student participation (+ prizes)

Demonstration - Memory metal demonstration –15 min ("Gday": pre-programmed shape)

Exhibits – Slide representing interatomic distances and LED
- Fibre Optic
- Memory metal pieces
- Agar plate
- Protein gels
- Western Blots

Posters – Allow students to have a look at the posters and fill in the provided questionnaire (10min)
- This also gives them the opportunity to look at and use the exhibits
- Have information on nanotechnology and related courses from some of the universities (showbags)
- Also be available for students to approach me and ask questions about subjects or uni or research careers in general.

Visits

Monday 6th November 2006

Cardijn College

PO Box 438
Noarlunga Centre SA 5168
Honeypot Road, Noarlunga Downs
Telephone:+61 8 8392 9500
Facsimile:+61 8 8392 9595
Email:registrar@cardijn.sa.edu.au

Time: 9:35-10:20am
Teacher Contact: Mr Bill Flynn

Amanda Aloia (the other SA Ambassador) and I both went to visit Cardijn together. The class was composed of approximately 30 students of a mixture of year 10's and 11 science students. The talks introduced nanotechnology, some applications of various nanotechnologies, and some information of tertiary study and a career in scientific research. Students were then invited to participate in a questionnaire, the answers of which could be found on the posters. Prizes were given out for answering questions during the presentation and for those who obtained correct answers in the quiz. The main prize being a $25 book voucher to Dymocks book store.

Tuesday 7th November 2006

Mt Compass Area School

School Road, MOUNT COMPASS.
Postal address is PO Box 54,
MOUNT COMPASS, South Australia 5210.
Phone (08) 8556 8219, Fax (08) 8556 8471
E-mail school@compassas.sa.edu.au.

Time: 1:45pm-3:00pm
Teacher Contact: Mr Neil Heath
The audience at Mt Compass involved approximately 30 year 10 students that were interested in science or moving on to specific science topics next year in year 11. The school was small and comprised of years reception to year 12. The school was located about 1 and ¼ hours south from the city. Students were very attentive and the teacher mentioned that the talk not only benefited them, but it also provided new information for him, and felt that it was a very worth while visit.

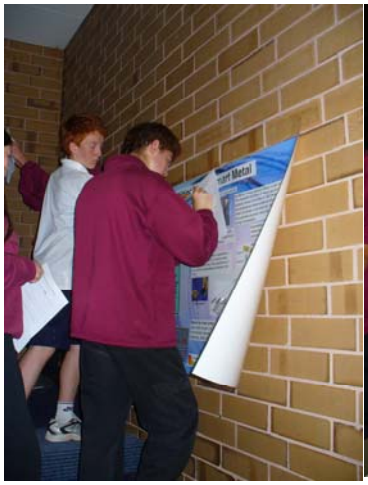
Wednesday 8th November 2006

Aberfoyle Park High School

Taylors Rd East
Aberfoyle Park
South Australia
5159
Phone: (08) 8270 4455
Fax: (08) 8370 5819

Time: 11:40am-1:10pm
Teacher Contact: Mr Russell Johns

Aberfoyle Park School is located about 40 minutes south of the city. At this school I was set up in the lecture theatre and ran through the visit twice for two different groups of around 50 students each. The first group was made up of year 9's and 10's and the second group was made up of two science classes of year 10's and 11's and were a little more perceptive to the talks and demonstrations. The teachers, as well as most students, again showed a keen interest in the demonstrations and other science exhibits on display.



Friday 10th November 2006

Tatachilla Lutheran College

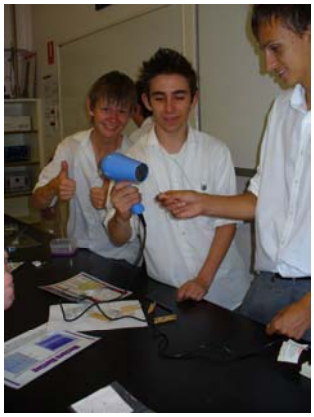
PO Box 175
McLaren Vale
South Australia
5171
Ph. (08) 83239588
Fax (08)83239788

Time: 9:00am-10:00am
Teacher Contact: Mrs Cheryl Simes
Both years 10 and 11 students from Tatachilla Lutheran College located about 1 hour from Adelaide participated in the talks and demonstration. There were two classes, approximately 60 students altogether in the science laboratory. The students were enthusiastic. Individuals had many questions relating to university studies and my personal experience with certain subjects in year 12 and how to cope.

Adelaide High School

West Terrace
Adelaide
5000
Ph. (08) 82319373
Fax (08) 82127827
Email: office@adelaidehs.sa.edu.au

Time: 1:30pm-2:45pm
Teacher Contact: Mr Ron Victory



Approximately 30 students from year 11 science classes (predominantly physics) attended the session. These students were very attentive and asked some very good questions. Some students were keen to talk about the ethics of nanotechnology and its impact on the future. All were very keen to try the memory metal.

The teachers expressed their appreciation of such a visit and a keen interest to do the same thing next year if it was available.

Prizes used for questions and questionnaires during nanotechnology visit

Spy Pen - Invisible Ink Pen

With this incredible new pen, write with invisible ink and use the special, attached ultraviolet light at the other end to read the message. The pen's UV light causes the ink to fluoresce in the visible region.

Liquid Crystal Sheets - 4x4 inch

These laminated sheets of liquid crystal are temperature sensitive. The plastic sheets remain black except for a five-degree temperature range in which they display a series of colours that reflect the actual temperature of the crystal. Using sheets that change colours at different temperatures opens up a world of possibilities for experimentation. Please note that the effects of temperature on each of the liquid crystals depend upon the ambient temperature of the surroundings

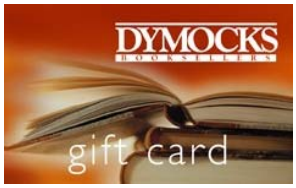
Giant Microbes

Mad Cow (Bovine Spongiform Encephalopathy)

Ebola (Ebola Virus)

The Common Cold (Rhinovirus)

Ulcer (Helicobacter pylori)



Book Voucher

Valued at $25 – Main prize for questionnaire winner