

## Students positive about science

Local research shows optimistic results for the promotion of careers in science.



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Staying in Science, the latest research paper released by the New Zealand Council for Educational Research (NZCER), showed positive trends in student participation rates and attitudes towards the learning of science – good news for both the industry and for the students themselves.

The study showed that “by and large, students who are still taking science in Year 13 are positive about their learning experiences.” The researchers emphasised that there was no single solution to encourage higher levels of ongoing participation in the sciences.

They found that student attitudes to the sciences could be broken down into main groups, or cluster patterns:

- **Serious Science;** those students who take multiple science and maths papers and genuinely enjoy their study.
- **Science/Business;** students with a broad range of interests who are relatively neutral about their career focus.
- **Keeping Options Open;** students with a ‘mixed bag’ of subjects and are unlikely to continue the study of science after secondary school.

Of particular interest was the difficulty in defining a career in science (or one that uses an education in science) as modern-day careers are not restricted to the classic ‘scientist’ stereotype. Many science educated professionals use their training in a variety of roles, including management. This makes interpreting trends in science

careers difficult but does demonstrate the advantages for students studying degrees in multiple fields. Students must be informed of the new opportunities now available to combine subjects in a job.

The paper concludes with findings on how best to advise and support students:

- Students need rich opportunities to find out about the many ways sciences can be used in interesting careers. The more exposure to the science industry and the many roles that are available, the more likely the student will find the most rewarding career option for themselves.
- Parents are the main influencers but not the only ones. The more students empathise with a subject, the more likely they are to develop an interest in its study. Face-to-face contact is far more effective than almost any other medium.

Funded by MoRST, the paper is intended to be used primarily to inform policy on the further promotion of careers in science. Copies can be downloaded from [www.morst.govt.nz](http://www.morst.govt.nz).

Futureintech can help teachers engage and inspire young science students by putting you in touch with science professionals. They can work with your class in many different ways – for just one example, see Teaching Outside the Square on page 2. To contact a Futureintech Facilitator to discuss how they can help you in your teaching, log onto the Futureintech website [www.futureintech.co.nz](http://www.futureintech.co.nz).

## Teaching **outsidethesquare**

What have a new sports energy bar, a skateboard park and a racing motorcycle have in common? One class at Rutherford High School can tell you. The answer is Futureintech... or more specifically our generous Futureintech Ambassadors.

When Molly Nepe was looking for inspiration for her class she turned to Futureintech Facilitator Angela Hart.

Molly has plenty of students who love learning about technology and engineering, and being a textiles and fabrics specialist didn't stop her offering them more.

After a discussion with teacher and students about what they wanted to get out of the classes it was decided to let each student choose their own personal project within their

field of interest. Once they received teacher approval Angela Hart found students mentors from the engineering sector.

The solution has proved highly successful, embraced with enthusiasm by both the students and the mentors.

One look at the projects they are doing tells you why: Isthmus is collaborating on the design of a skateboard park; Tasti Products is assisting in the creation of a new sports energy bar; and Senior FSAE

mechanical engineering students are overseeing the restoration of one Rutherford student's father's motorcycles, along with a few improvements.

The concept is an innovative approach to education and is proving to be highly successful, and more importantly; can be duplicated in other schools.

Futureintech has Facilitators across the country with contacts in all of the major fields of technology, engineering and science.

If you'd like to establish a similar level of cooperation between your school and science and technology professionals, then log onto the Futureintech website to get Facilitator contact details:

[www.futureintech.co.nz](http://www.futureintech.co.nz).

## Getting everyone involved

Robertson Road School have put a new spin on the Transpower Neighbourhood Engineers Awards by getting the entire school involved.

The Transpower Neighbourhood Engineers Awards is normally a class competition. Students, teacher

and a volunteering engineer from the community work together to create a new resource, either for the

school itself or for the community as a whole. Past examples have included playgrounds, sunshades and recreation areas.

At Robertson Road, however, the school's eleven classes are collaborating on a major project, to build senior and junior playgrounds for the school. Each class has nominated two class leaders who coordinate their class's individual efforts under the supervision of Civil Engineer Mike Smith.

The school has already raised the necessary funds for the project and students are drawing up the final designs for the two playgrounds. Should the school win an award, they will receive a further \$2,000 to spend as they choose.

For more information on the Transpower Neighbourhood Engineers Awards, contact Susan Weekes at: [neawards@ipenz.org.nz](mailto:neawards@ipenz.org.nz).



## NASA Engineer returns

After the phenomenal popularity and success of his previous visit in August last year, NASA engineer Dr Jack Bacon is returning to New Zealand for a more comprehensive tour of the country.

Pictured on the right at Wellington's Michael Fowler Centre, Dr Bacon's previous public lecture, was entitled 'History in the making'.

His lecture was a fascinating in-depth seminar on NASA's vision for future Moon and Mars missions, space shuttle missions, and an outline on his work on the International Space Station, which he calls "the most complicated technical project in history".

Sponsored by the Royal Society of New Zealand, Dr Bacon's new lecture series promises to be as entertaining and noisy as his previous performances.

Dr Bacon's upcoming tour will take him across the length of New Zealand where he will present lectures to schools in all of New Zealand's major cities as well as giving a free public lecture in every city that he visits.

The school seminars will be open to year 10, 11, 12 and 13 students and the public lectures will be open to all who wish to attend.

Teachers interested in having their students attend a school presentation, please contact Debbie Woodhall as soon as possible, with the number of students that wish to attend – email [debbie.woodhall@rsnz.org](mailto:debbie.woodhall@rsnz.org).



### NASA ENGINEER DR JACK BACON LECTURE SCHEDULE:

|         |              |                                                          |
|---------|--------------|----------------------------------------------------------|
| 9 June  | 1.30-2.30pm  | Lecture at Epsom Girls' Grammar School                   |
|         | Evening      | Public Lecture – Auckland                                |
| 11 June | Evening      | Public Lecture – Rotorua                                 |
| 12 June | 9.15-10.30am | Lecture at Rotorua Lakes High School                     |
|         | 8.00pm       | Public Lecture – New Plymouth                            |
| 13 June | 9.15-10.30am | Lecture at New Plymouth Boys' High School                |
|         | 8.00pm       | Public lecture – Palmerston North                        |
| 15 June | 9.00-10.30am | Lecture at Wellington Girls' High School                 |
|         | 1.45 -2.45pm | Lecture at Nelson College                                |
| 16 June | 1.45-3.00pm  | Lecture at Greymouth High School                         |
|         | Evening      | Public Lecture – Greymouth                               |
| 18 June | Evening      | Public Lecture – Invercargill                            |
| 19 June | 9.15-10.30am | Lecture at James Hargest College                         |
|         | Evening      | Public lecture – Dunedin                                 |
| 20 June | 9.15-10.30am | Lecture for students at Otago Museum                     |
|         | 1.45-2.45pm  | Lecture at Timaru Boys' High School                      |
|         | Evening      | Public Lecture – Timaru                                  |
| 21 June | Morning      | Answering a Christchurch school's questions via telelink |
|         | Evening      | Public Lecture – Wellington                              |
| 22 June | 1.45-2.45pm  | Lecture at Napier Boys' High School                      |
|         | Evening      | Public Lecture – Napier                                  |
| 23 June | 1.45-2.45pm  | Lecture at Hamilton Girls                                |
|         | Evening      | Public Lecture – Hamilton                                |

## Futureintechnews

### Ambassador commended

Futureintech Ambassador Pitone Leuga has been awarded a Chief of Defence Force commendation for his coolheaded actions aboard the HMNZS Canterbury.

Chief Petty Officer Leuga, a naval engineer, was on duty in the Canterbury's engine room when the ship began to shake violently causing ruptures in key joints resulting in shafts of steam venting within the hull.

CPO Leuga reacted first to the emergency, racing past other sailors to trip the Main Feed Pump,

"The space was full of lagging dust, and steam, and it was like being in a severe earthquake," he said.

"Everything was shaking and I knew what could happen if it all went wrong.

"But one of the guys was down there, and we're sort of like a family in the Navy, so I didn't really hesitate. He shook my hand later and thanked me."

A later investigation found the pump turbine bearing in the aging frigate had melted, seizing the pump and turbine. The resulting extreme vibrations caused the turbine rotor and stationary nozzle box to suffer interference, increasing the damage. The marine investigator's report stated that, "without prompt action, the result would have been catastrophic."

The report concluded that it was the Marine Engineering Officer's opinion that, if allowed to operate for only



moments more, the pump turbine would likely have disintegrated, sending shards of metal flying around the engine room. In addition, the resulting superheated steam

### [www.futureintech.co.nz](http://www.futureintech.co.nz)

Futureintech's website contains a wealth of information for students, parents, teachers and careers advisors. It has profiles of young people working in technology, engineering and science, and the companies they work for, along with information on different courses, careers and scholarships available.

leaks would have subjected the personnel below to significant risk of injury or death.

CFO Leuga volunteers his time as a Futureintech Ambassador, working alongside students on science and technology class projects.

### RDC Engineering Promotion Day

The Rotorua Convention Centre will play host to the next Rotorua District Council Engineering Careers Expo on 21 June.

The forum is an opportunity for students to find out what engineering graduates can expect from an engineering career locally, nationally or internationally.

The event will be attended by some of nation's top engineers who will give demonstrations and presentations throughout the day, recommend study options and internships, and answer questions and provide advice for those interested in engineering practices.

All are welcome to attend – contact Brendon Kidd by Wednesday 14 June, phone: (07) 348 4199, email: [brendon.kidd@rdc.govt.nz](mailto:brendon.kidd@rdc.govt.nz)