

Hands-on learning

Having outside experts helping in the classroom can be an excellent learning tool for students – and their teachers.

This is where Futureintech comes in. It's our job to help teachers find the right people to support their maths, science and technology programmes.

Futureintech has six Facilitators based around the country, all with teaching backgrounds and a wide range of contacts with local industries. It's their job to help build relationships between schools and industry, and recruit and train our Ambassadors.

Futureintech Ambassadors

Futureintech Ambassadors are young engineers, scientists and technologists with a passion for what they do.

In 2005, our Ambassadors helped students with a range of projects in schools, including the design and building of bird houses, electrical circuits, sand pits and playgrounds, and helped with computer programming and food technology units, just to name a few examples.

Having Ambassadors in the classroom is a great learning experience for students. It motivates and inspires, and can show how subjects like maths, science and technology are used in real jobs. For teachers it can also be a refreshing and rewarding experience.

During 2004, Clifton Terrace Model School in Wellington was one of the first schools to become involved with Futureintech. The school worked with environmental engineer Hannah Hyde, who helped the students redevelop a rocky bank into a useable space. According to teacher Delia Glogowski, Hannah's input was crucial.

"It made the learning experience very real for the students. Hannah is able to answer questions and facilitate discussion in a way that I can't, because of her professional knowledge.



Futureintech Ambassador Kane Alward shows students at The Gardens Schools how water pumps work.

"She has really given the students a better understanding of what an engineer does."

Futureintech

Run by IPENZ and funded by the government (via New Zealand Trade and Enterprise), Futureintech is now into its third year of operation.

We're not about glossy adverts or boring lectures. Instead, we aim to give students hands-on experience and show, rather than tell, what these professions are all about.

Page two has the contact details for your local Facilitator, if you haven't already met them, who would be only too happy to hear from you.

Page three has information on the school programmes we support - the Transpower Neighbourhood Engineers Award; CREST; Bright Sparks; and the Young Designers Award. These are all curriculum-based programmes with proven records of success.

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Transpower Neighbourhood Engineers Award Winners Announced

David Henry School in Tokoroa has taken out the Transpower Neighbourhood Engineers Award for 2005, and with it a cash prize of \$2,000.

The winning project was developing a sun-safe sandpit with the help of local engineer (and Futureintech Ambassador) James Ravenscroft.

According to James, the project began "with a hole in the ground, a motivated teacher and a group of enthusiastic students."

After surveying their fellow students for ideas, the group decided to focus their project on installing some form of shade for the school's new sandpit. James then helped the students investigate and evaluate different options, build models, and learn more about the sun.

"I think that the project has 'shone a light' on engineering as a possible future occupation for the students,

and given them an insight into what sort of work engineers do," says James.

"I believe that there is great potential in the group to turn out some skilled future engineers."

Daphne Kirkby, the teacher in charge of the project, says having James visit the students regularly and keep in touch via email has helped to motivate the students.

"He asked excellent questions to draw forth more ideas and to help guide the project. He also set tasks to challenge them."

Merit prizes were awarded to Mt Eden Normal Primary School for their redevelopment of a rocky hill into a playground, and to St



David Henry School meets the press

Kentigern College for their work on an alternative roading proposal for the Manukau City Council.

The Neighbourhood Engineers Award is sponsored by Transpower, and promoted in schools by Futureintech.

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Futureintech's classroom projects

Futureintech's focus in schools is on providing curriculum support for teachers – helping them to teach maths, science and technology.

Teachers already have a very busy workload and lots of things to teach without adding new areas. That's why the programmes we support are all curriculum-based, and have proven track records of success.

Many students participating in these programmes have won awards and prizes, travelled overseas, and started tertiary study as a direct result.

Want to know more? Get in touch with one of our Facilitators, who can help set up these programmes and arrange for Ambassadors to help out. We'd love to hear from you.

- **CREST** is an international awards scheme designed to encourage creative and practical student projects. It teaches students to be innovative,



Announcing the winners at the Young Designer Awards

creative, and to problem solve, usually with the help of an outside consultant (such as a Futureintech Ambassador).

- The **Transpower Neighbourhood Engineers Awards** is similar to CREST, except that it is a team project and a competition. The Institution of Professional Engineers (IPENZ) judges the entries and awards prizes of up to \$2,000.
- **Bright Sparks** has the goal of attracting students into hi-tech

careers. It offers an electronics programme as a full subject at senior school, along with a web and email based club, mentoring, industry links and workplace visits.

- The **Young Designers Awards** is New Zealand's premier national design competition for secondary schools, and offers a range of categories including Electronics, Communication, Fashion, Products, Landscape and the Built Environment.

Physics could die out in schools, warns study

Physics is in danger of dying out in British schools because of a shortage of teachers and a perception that the subject is difficult, according to a study from Buckingham University.

Over the past 15 years, the numbers taking physics at A-level had fallen by 38 per cent, chiefly because most of those teaching it did not know enough to instruct, let alone enthuse, their pupils.

"We may be in danger of sleepwalking into the loss of one of the great branches of knowledge from our schools. It is one of the most striking and disturbing trends in education," said Professor Alan Smithers and Dr Pamela Robinson of Buckingham University,

who carried out the study.

One teacher involved with the study said: "Non-specialists convey the impression that the subject is difficult because of their own unfamiliarity with it. This instils prejudice and creates problems that can often not be rectified later."

Typically, physics teachers were male and ageing. They were being replaced by biologists, who were young and female and did not know enough about the subject to secure its future. The study predicted that without adequate replacements the subject could disappear from comprehensive schools within 10 years.

Futureintechnews

Video-conferencing in action

Students from around New Zealand took part in an innovative video learning experience last month, organised by the **NZ Biotechnology Learning Hub** in conjunction with Futureintech.

Futureintech Ambassador Stephen Tauwhare, a research scientist with IRL in Wellington, presented his work on harakeke (flax) to students from Te Kura Kaupapa Maori Ruamata (Rotorua), Hoana Waititi (Auckland), Tamaki Nui A Rua (Dannevirke) and Dunstan High (Otago).

Stephen work is groundbreaking, combining traditional Maori knowledge and usage of harakeke with modern scientific techniques.

Students from each of the schools prepared questions for Stephen to answer, and afterwards many admitted their perceptions of a career in science had changed.

UK launches engineering and technology campaign

'Shape the Future', a campaign to raise awareness of careers in technology and engineering, has been launched by the UK's Royal Academy of Engineering. It is backed by the government and a range of public and private organisations.

Similar to Futureintech, the campaign aims to bring together a range of existing initiatives and provide opportunities for students to learn more about these careers.

Academy Senior Vice President Professor Wendy Hall says that "enormous sums of money have been spent over the years to attract more young people into engineering



Students from Dunstan High School, Otago taking part in a video conference

and technology yet the research shows that more needs to be done.

"We must be more effective, more coordinated and more relevant in our efforts to inspire the next generation and communicate to them the excitement and rewards of a career in engineering."

www.raeng.org.uk/news/releases/shownews.htm?NewsID=295

www.futureintech.org.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.

A guide for caregivers

Futureintech has published a 14-page guide for parents and caregivers on careers in technology, engineering and science. The booklet features profiles of young professionals, job descriptions, course information and information on scholarships.

Research shows that parents and caregivers are still a major influence

on the career choices made by students. This guide aims to give parents a bit more confidence to explain and encourage these careers to their children.

Copies are available for free via our website www.futureintech.org.nz.

