New teacher support pack

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So you've finished your training and are excited to head into the classroom and get your teaching career off to a flying start.

This first year is one of the most important and exciting steps in your teaching career. To assist in making the most of this year, Techlink have produced this support pack to make new Technology teachers aware of the wide range of support and resources that are available to them and to give some helpful advice as they head into the classroom for the first time.

This Techlink New Teacher Support Pack includes:

- **Tips for New Teachers**

  Useful advice for first-year teachers from experienced Technology teachers

- **Techlink Principals' pamphlet**

  Information for principals/parents unfamiliar with Technology

- **Teacher Talk 1 & 2**

  Leaflets looking at aspects of Technology education

- **TENZ Information and Application Form**

- **Subject Associations**

  HETTANZ, NZGTTA & NZACDITT

- **Useful sources**

  Some sources to find out more and keep up-to-date in Technology education

- **Techlink brochures**

Tips for new teachers

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What are the key resources you use to develop your understanding of teaching and learning in Technology (eg, assessment, indicators of progression, Technology support materials, Techlink)

TEACHERS

- Subject association peers.
- Teachers in other subject areas.

WEBSITES

- Techlink – www.techlink.org.nz
- TKI – www.tki.org.nz
- NCEA – www.nzqa.govt.nz/ncea

CURRICULUM SUPPORT MATERIAL

- Technology curriculum support documents/explanatory papers.
- Indicators of progression – provide guidance on the level of understanding, knowledge and skill required for each year level.

WORK EXAMPLES

- Look at exemplary work from previous years to judge the criteria expected.
- Observe colleagues' ongoing projects – provides indications of expectation, assessment and achievement at different levels.
- Read the examiners' notes after each year's external assessments are concluded, for good tips and to find out what worked and what didn't.

EXPERIENCE

- Become a marker for Technology external assessment.

What support can a first year teacher expect from an HOD?

- Mentoring in your school's specific traditions and 'ways' of doing things.
- Ensuring that you have access to required resources to teach your subject topics.
- Appraisal and lesson observation – with review time.
- Checking grades and ensuring consistency of marking across classes.
- Department meetings where the whole department meets to discuss subject matters.
- Demonstration of new skills if required for a specific topic.
- Advice and guidance about classroom management.
- Support in dealing with classroom discipline.
- Discussion on unit and lesson plans to help judge the time, level of understanding and skill required.
- Demonstration of classroom and time management by offering teacher opportunities to observe experienced teachers in action.
- Provision of opportunities to test and trial new ideas.

What keeps you passionate about teaching Technology?

- The students – their passion and enjoyment of the subject, the amazing outcomes they produce, and the creativity, ideas, and humour they bring to their achievements.
- Variety – every day and every class is different, with each student bringing their own ideas, inspiration, emotions and abilities to the table.
- Development – finding new, more interesting topics each year, or putting a new spin on tested ones.
- Problem-solving – using design to work out how to make things.
- 'Light bulb' moments – seeing the lights switch on when a student 'gets it'.
- Pride – seeing how proud students are when their hard work and initiative is recognised.
- Realism – authentic teaching scenarios give relevance to projects and add value for the students, who raise their efforts to reach the real-life standards of quality required for success.
- Creativity – Technology's unique approach to teaching challenges and empowers students to do something new and different and allows them to be creative while learning the required knowledge to execute their ideas.
- Skills – Technology uses a wide range of thinking strategies and skills that can be used in school and in life beyond the classroom.

A teacher's first year in the classroom is one of the most important steps in their career, so it's important to go into that with the knowledge that there is support and help available.

Techlink asked some experienced Technology teachers to share their best ideas and tips for making that first year and upcoming years as enjoyable and successful as possible, for new teachers and their students.

The teachers we interviewed...

SANDIE MACLEOD-SMITH

Sandie is the HOD Technology at St Cuthbert's College and has a graduate Diploma in Technology Education from Massey University.

Sandie's main teaching area is Biotechnology but she also teaches Food Technology "with a very scientific basis". The Technology department that Sandie established at St Cuthbert's in 1998 has become one of the most successful in the College for its NCEA results.

Sandie's achievements and contributions to Technology education were recognised this year when she received the Independent Schools Outstanding Teacher award.

BARBARA KNIGHT

Barbara has a strong background in Fashion Design having completed a diploma in Fashion Design and Technology at Wellington Polytechnic in 1993 as well as extensive experience within the industry working as a Designer/Pattern-maker.

Barbara has taught Technology since 1998 when she joined Kapiti College as a Materials Technology teacher and assistant HOD. She joined Queen Margaret College in 2003, and was made HoD at the beginning of 2005.

Barbara has extensive involvement in external assessment and has received awards for her outstanding work as a teacher.

CHRIS SMYTH

Chris has a Bachelor of Design in Visual Communication Design from Victoria University of Wellington's School of Design.

He worked for several years as a freelance technical illustrator, portrait and landscape painter before joining St Patrick's College Wellington in 2002 to teach Art, Graphics and Technology. He has since become HOD Technology at the College.

What systems are in place in your classroom to ensure that equipment, machinery and resources are organised, and that students take care of them?

BE SAFE

- Teach students to use equipment correctly and safely as early as possible.
- Explain what can go wrong.
- Ensure that all students are wearing the correct gear at all times.

STORAGE

- Have separate boxes or baskets for each class's ongoing work – this prevents it getting lost at home or between classes.
- Keep all consumables in a locked cupboard or pantry.
- Make sure all equipment has a clearly labelled designated storage area – this makes equipment accessible and encourages students to put things back themselves.
- Colour code storage for each class or subject.

MAINTAIN YOUR GEAR

- Educate students to look after equipment and encourage them to report any damage.
- Maintain equipment at regular intervals and record in a register to keep track – eg, sharpen scissors every six months.
- Repair equipment ASAP – a run-down workshop invites vandalism.

DISPLAY

- Ensure all timetables/unit plans and useful infomation are clearly displayed – students need to know if they can leave work out or have to put it away for the next class.
- Place clean-up lists clearly on the wall or board – have students write their name on a job for each lesson or have a weekly rotation.
- Have separate pinboards for each class/topic
- Rotate displays/resources regularly to maintain interest.

Ensure all students wear the correct safety gear at all times.

Do you have any tips on how to make the classroom an efficient and creative space?

STUDENT WORK

- Use good examples of student work from each unit – this is informative, recognises student achievement and creates a colourful, creative environment.
- Photograph good examples if necessary.
- Rotate displays of student work often – this keeps interest up and makes everyone feel their work is valued.
- Avoid clutter/hoarding – if it is unlikely to be used, get rid of it.

POSTERS

- Make large posters for each unit with relevant information photos and articles – this is a useful quick reference for students.
- Posters on the technological process, glossaries of technological terms and information on research and thinking skills should be referred to regularly for students to understand their value and use within class.

WORKROOM LAYOUT

- Organise the workroom to maximise efficiency and safety – ask students to help with this.

Sandie Macleod-Smith in class – note the poster on research

What are the most important things for new teachers to do or set up for their first year of teaching?

CHALLENGE YOURSELF

- Change your programme often
- Constantly keep an eye out for new ideas

CHALLENGE STUDENTS

- Give them a goal that appeals to them then push them to do more than they think is possible.
- Problem solve – students should understand that mistakes happen, it's how they deal with them that counts.
- Self-management – the older the students, the more responsibility they should have for planning and organising their resources.

KNOW THE MATERIAL

- Read the achievement standards and explanatory notes in the curriculum to fully understand all the requirements.
- Read the Technology support document to make sure you know the Technology curriculum, the language used and the knowledge required
- Know each subject well – stay ahead of the students but be prepared to admit that you don't know something.

BE PREPARED

- Plan everything – from daily and weekly through to term-by-term, annual plans and calendars.
- Have notes and equipment ready for each class.
- Don't wing it – this can be very stressful, especially in practical lessons. Preparation gives you confidence in class.
- Test activities before you try them in class – this gives insight into the possible problems the students may encounter.
- Manage your time well – things often take longer than expected so make sure you have time for clean-up at the end of each class to maintain an efficient, stress free teaching environment.

BE ORGANISED

- Have an advanced organiser on the board – this will keep you on track and let the students know what to expect in the lesson.
- Sort all teaching topic resources into separate folders – ring binders are great, as you can change the order when you need to.
- Keep your office tidy and organised – this makes life a lot easier.
- Keep track of budget expenses – an Excel template is perfect for this.
- Don't take in too much at once.
- Stagger your hand-ins for marking and formative checking – it often takes longer than you think.

COLLECT

- Build up a resource of demonstration pieces.
- Photocopy all mark sheets given back to students and file away for reference – get students to sign the grade before its copied.
- Success breeds success – keep the best student work to demonstrate excellence for each topic.
- Laminate the best visual resources – It keeps them in better condition for revolving displays.

TALK TO PEOPLE

- Get support – attend advisory cluster groups, subject association group meetings or meetings of Technology teachers in your area.
- Ask for guidance and help from more experienced teachers in your school – they often have useful strategies and alternatives to share.
- Peer check grades with a colleague – this helps with accuracy and builds confidence.

IN CLASS

- Enjoy yourself – show enthusiasm and passion for your subject.
- Wait for silence before you instruct – this will save time repeating yourself.
- Be aware – look and listen for students who are off task and keep moving round the class to keep everyone on track
- Think on your feet – always have an alternative lesson up your sleeve if things don't work out as planned.
- Learn from the students – if you don't know something, get them to find out.
- Use other curriculum areas when appropriate.

AFTER CLASS

- Revise each topic as you complete it – modifications are easier to make when it's fresh in your mind and this avoids repeating problems next year

WORK-LIFE BALANCE

- Remember – your social and family life is important.
- Take care of yourself; exercise but also keep a stash of chocolate in your office – you never know when you'll need it!

Clearly labelled storage at Queen Margaret College

Techlink – www.techlink.org.nz

Technology education in your school

Is your school providing the best opportunities in Technology education for your students? Are your students being equipped with skills and knowledge they need to participate in a technologically changing society?

WHY IS TECHNOLOGY IMPORTANT?

Technology is one of the essential learning areas in *The New Zealand Curriculum (2007)* and is compulsory for all students in New Zealand schools up to Year 10. As such, Technology provides exciting opportunities for all students to develop and extend their ideas and to explore creative solutions to practical problems.

Technology is becoming increasingly important in preparing students for tertiary education and technology-related careers. Students work creatively and analytically to identify, trial and evaluate potential solutions, and put their ideas into practice. Throughout the country innovative schools are enjoying their students' success.

As an approved subject for university entrance, Technology teaches a broad technological literacy which equips students with skills and knowledge essential to all kinds of work and university study, and most importantly it enables students to participate confidently as informed members of society.

Technology education motivates students to participate in purposeful activities, enabling them to integrate their knowledge and skills from many learning areas in real and practical ways. They learn to be creative and innovative in generating ideas, and to translate their ideas into action that most often results in technological products.

Technology also gives students opportunity for interaction with business and industry that provides them with professional and practical experience.

If your students are receiving the best opportunities in Technology then they will develop skills and knowledge to be confident in using a variety of means to address needs and opportunities to solve practical problems. They develop lateral and divergent thinking, and learn to explore choices and the factors that influence choice, such as culture and society, costs and benefits, aesthetics and fitness for purpose.

A well-delivered Technology curriculum presents students with new and exciting opportunities and challenges them in a way unlike any other subject.

WHAT'S HAPPENING IN NEW ZEALAND SCHOOLS?

Here are just a few examples which highlight some of the excellent technological outcomes being achieved by students around New Zealand:

Remote Stoat Trap Monitor

Westburn School Year 8 student Logan Glasson worked closely with the Department of Conservation to design a stoat trap monitor which monitors the status of traps in remote locations. He identified a need for this after helping his uncle clear stoat traps on the Moonlight Track in Paparoa Range and finding no

What educators are saying...

PROFESSOR JANIS SWAN
Associate Dean of Engineering, University of Waikato

"Technology helps us transform ideas into reality, turn discoveries in the lab into full-scale production, develop new things and services, and to find new ways of doing things. Technology offers innovative ways of solving many of the challenges and problems we face today.

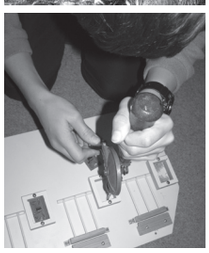
"We urgently need people with the skills to look at a situation in an innovative way, who can develop a new material, a new process, a new device, or a better way of doing what we are currently doing."

PROFESSOR BOB HODGSON
Director, School of Engineering, Massey University

"Globalisation and technological change are two key features that are changing and shaping our lives.

"The Technology curriculum has now developed to a level that I strongly recommend it as a subject, both to students who have an interest in making a career in engineering, technology or science, and generally as a means of better understanding the modern world."






stoats had been caught at the top of the 9km line.

Logan designed a radio transmitter to signal to a base unit when stoat traps are tripped. Logan investigated the radio signals required for his design, explored various timing systems to turn the transmitters on and off and created a prototype operating program for his monitor.

"I have enjoyed making my pest trap monitors, and I think it is great that by using my enjoyment of computer programming and electronics I could help New Zealand's native wildlife," he says.

Logan won the 'Best in Fair' prize at the 2008 Canterbury Westland Regional Science Fair and gained second place in the 2008 Bright Sparks Competition for the 12 years and under category.

Strip-built Racing Kayak

Wellington College Year 13 student Sam Notman decided to build a one-person flat water racing kayak for his client who is a multi-sport competitor. This was in response to a problem his client had with his current kayak which was too small for him and sat too low in the water.

Sam researched the problem and decided that a new kayak would be the best solution. Additional research on technical requirements and costs showed Sam that it was possible to build a kayak, strip-built from wood, within a budget of $500.

"The client wanted a really light boat that he could carry and put on his car" says Sam. The client also wanted the kayak to be strong and built for speed, which meant it had to sit high in the water with minimal drag. For advice on the correct woods to use, Sam consulted with Wellington Timber Specialists.

Sam spent many hours testing his design through mock-ups that explored shape and form, and balance and finish. When problems arose Sam modelled solutions and discussed alternative approaches with experts he had contacted and befriended. Once the kayak framework was complete, Sam covered it temporarily with a heavy plastic skin and heat shrink-wrapped it for full sea trials, and then finished it with epoxy-resin coated nylon.

The kayak passed with flying colours and the client was so happy with the results that, although he originally intended it for training, he now wants to race with it.

Finger Food for 300

Northland's new regional TV station Channel North launched its Pukeko Echo Television (PET) project at Manaia View School in August 2008.

HOD Technology Heather Whaikawa offered the task of catering for the function to a small team of Year 7 and 8 Technology students.

Their aim was to successfully plan, cook, present and serve a fantastic array of nibbles to 300 guests at the black-tie launch which included a Member of Parliament and many local dignitaries.

The students researched the brief and obtained professional advice on menus, servings, presentation and purchasing.

Technology projects provide great opportunities for media coverage to increase the profile of your school within the community

Sandwiches whets designers' appetites

SOPHIE NEVILLE

A LOCAL bar has been lit up by a team of Wellington High School students who have spent the year designing innovative lighting.

The students — Ruth Keiry, Shaun Graham, Sarah Jordan, Lance Corlett, Amy Richards, Ann Hibbard and Lauren McMasman — unveiled their works at inner-city bar Sandwiches last month.

The seven year 12 students have spent the entire year working on the technology project that saw them involved in the planning, design and making of the lights.

From table lights to metre-high works of art, the lights were designed especially for Sandwiches. Students spent time at the bar working out the space and deciding on a concept for their designs. The brief was to create something with a 1960s Kiwiana feel.

Ruth said her light "took over my life". She spent hundreds of hours on her project — a wooden side table lit from the inside and lined with old 60s-era curtain material.

"It got to the point where we were missing other classes to work on our lights. It was just manic."

She was very pleased with the result and said designing something for a bar had been exciting. "It makes you feel appreciated. It's cool because throughout the whole thing, we've talked to the managers and kept them updated."

Classmate Shaun was told by numerous people his spiralling concrete design was impossible. A huge amount of work later, the 17-year-old proved doubters wrong and created a metre-high bar table, lit with red lights coiled through the concrete cylinder.

"It's a miracle it worked, really — 90 per cent of people told me it would fail."

Sandwiches co-owner Bryce Mason said he was blown away by the standard of the designs. "They are absolutely incredible."

Illuminating: Ruth Keiry and Shaun Graham with the lights they made for Sandwiches bar. 'Ninety per cent of people told me it would fail,' said Shaun of his spiralling concrete creation. Picture: ROSS GIBLIN

Schools reap Joseph's designs

JOSEPH FOLOSE, a Wellington College year 13 student in 2006, has designed and built a school seat he says is more hard wearing, less expensive and more comfortable than most outdoor seats used in schools.

His work has been recognised by Techlink, a joint venture of the Education Ministry and Engineers New Zealand, which provides advice on technology education to schools.

Joseph said he had always been interested in design. He started work on the school seat at the suggestion of Wellington College deputy principal Dave Ashley, who was upset at the state of the school's seating.

Joseph said many of the school's seats were in poor condition, unable to cope with the ravages of weather. Many were too low and uncomfortable, providing no back support. Some were potentially unsafe.

He designed a seat with a steel frame and made of decker wood. "I chose it because it's easily maintained and inexpensive."

Joseph also designed special acrylic sheets inserted between the seat panels, to prevent rubbish being put in the gaps. He also designed a backrest at an angle of 81 degrees for maximum user comfort.

After three months' work his creation was assembled and ready for the big test.

"I got 10 boys to jump on it. They didn't break the frame."

Joseph believes his seat cost between $400 and $500 to make. Similar-sized seats cost about $1000.

However, it remains a prototype.

Last year Joseph received scholarships in design and technology.

This year he is a student at Natcoll design technology, a national private education provider.

Another successful job last year was designing a set of cricket wickets for nearby St Mark's School.

Joseph's wickets automatically return to shape after the stumps have been removed, saving the time normally spent reassembling the stumps after a batsman is bowled or run out.

He used a system of springs and sprockets, and he made a base for the stumps that included the St Mark's logo.

Joseph Polsie with his school seat.

Student praised for paua project

Stakeholders were identified and consulted with and an action plan was developed.

"We wanted the food to look classy and be tasty, but as a 'Gold Heart Beat Award' school we also wanted to be careful to make sure that it would meet the requirements of a health promoting school," said Heather.

A week before the launch, the group held a trial run. All food was prepared and the stakeholders invited into the school to sample the food and suggest improvements where necessary.

On the day, the students did a fantastic job of presenting the food and making sure everything was cleaned up afterwards.

Principal Leanne Otene received a huge number of positive comments from the guests.

"When I told them that it started as a Technology brief and that everything had been done by the students themselves with very limited adult support, they were even more impressed," she said.

"Heather and the group catered for a black tie event with the skills of a professional catering company. I have never been so proud."

In this project, which won the $2,000 first prize in the 2006 Transpower Neighbourhood Engineers Awards, ten Year 5 and 6 children from Elm Park Primary School worked with Beca chemical engineer Eleanor Marks to design and create a fountain to brighten up the entrance to their school's international office.

"The children constantly impressed me with their creativity," she said. "They don't need to be told to think outside the square, they seem to just think that way."

What industry leaders are saying...

DR ANDREW CLELAND
Chief Executive of the Institution of Professional Engineers New Zealand

"As New Zealanders we pride ourselves on being self-reliant and on our ability to be innovative. To be competitive requires a high level of technological knowledge and expertise.

"IPENZ considers that the current Technology curriculum can provide the foundation to develop the technology graduates vital to our future, and to ensure that every New Zealander can thrive in an increasingly technologically engaged society. It is vital that all our citizens – from young children to the elderly – have a level of technological literacy that means they have the knowledge and confidence to choose and use the best technologies. And not just in a consumer sense – throughout our whole society there needs to be a deep understanding and valuing of the way technologies empower us.

"With such a base our innovative thinkers can then be world-leaders in the way we use technology."

DR SALLY HASELL
Former President NZ Institute of Food Science and Technology

"The food industry in New Zealand is a major generator of wealth, both in terms of income and employment opportunities. A large proportion of the people working in it and in its supporting industries are technologists.

"Specialist food technologists and biotechnologists work to develop new crops, foods, and processes that increase the diversity, convenience and desirability of the foods New Zealanders purchase and export. In addition, producing, transporting, storing, selling, packaging, and all the other aspects of managing food production from the farm to the table, require input from a diverse range of technologists in areas such as IT.

"Technology is the life blood of the food industry and therefore of New Zealand's prosperity and well-being. NZIFST encourage and support young people to see technology as a great future."

WHAT STUDENTS ARE SAYING ABOUT TECHNOLOGY

Josh Fransen, contract supervisor for Brian Perry Civil:

"Working in the civil construction field, my job requires a lot of the skills learnt in Technology, in particular, planning, problem solving, client emphasis, initiative, working in a team, multi-tasking, and self management.

"What I liked most in Technology classes was the mix between work in the workshop and the paperwork, and seeing the results of what I had completed; watching it evolve from paper to a finished product."

Alice Irving, studying for a conjoint degree in Law and Arts at Otago University:

"The skills I learnt in Technology Education have been invaluable at university. Technology was my first real chance to tackle large projects which required considerable time management and self-discipline to complete. This has equipped me for the university environment.

"Technology encouraged me to self-evaluate, to respond constructively to input from others, to problem solve and to think laterally. These are all skills which are highly transferable to university study, regardless of the particular field you choose to pursue".

How can Techlink help...

The Techlink site – **www.techlink.org.nz** – reflects a significant and growing body of research and classroom practice. It provides resources to support schools and teachers to help in the implementation of the Technology curriculum. At Techlink you will find examples of contemporary teaching and learning in Technology, curriculum support, and encouragement for teachers in their ongoing planning and implementation of classroom programmes.

CURRICULUM SUPPORT

Techlink's curriculum support package includes: Ministry of Education guidance and overview; explanatory papers of each of the achievement objectives, indicators of progression, unit planning papers on technological literacy, programme design, values, and key competencies.

The full curriculum support package can be viewed online and downloaded as PDFs, at **www.techlink.org.nz**.

The Ministry of Education also welcomes ongoing feedback on the usefulness of this package, and guidance from principals and curriculum leaders as to any additional material schools and teachers would find useful.

INFORMATION FOR PARENTS

Techlink can assist with providing parents with information about Technology.

The Techlink Information for Parents section outlines what Technology is, emphasises its importance and the skills and benefits gained from Technology, explains the three learning strands and Technology levels, and includes various testimonies from students, parents and experts.

This site also has printable resources that can be handed out for parents to take home.

For more information visit: **www.techlink.org.nz**

TECHLINK MEDIA KIT

Techlink also provides support and assistance in dealing with the media and writing media releases.

Getting media coverage of your school's Technology projects can be a great way to raise your school's profile and celebrate the achievements of your students.

The Techlink Media Kit takes you through a step-by-step process from identifying a potential news story to contacting and dealing with journalists.

A detailed media kit and the full curriculum support package can be downloaded from the site.

For further assistance, please contact: **comms@techlink.org.nz**

TECHLINK IS A PARTNERSHIP BETWEEN THE INSTITUTION OF PROFESSIONAL ENGINEERS (IPENZ) AND THE MINISTRY OF EDUCATION

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IPENZ ENGINEERS NEW ZEALAND

the students on board, the process is in motion. Make sure that everyone understands what Technology is all about and share your enthusiasm.

"The Board of Trustees thrives on successes because they are a way of marketing the school as well as proof that their children are offered all possible opportunities for achievement."

Steve also uses direct communication with parents to lift the profile of Technology in his school. "Every year in about the fifth week we invite the parents of our senior technology students to a product technology evening, and invite senior staff as well. Parents have been tremendously responsive. We get a fantastic turnout and a lot of feedback has come back into the school about how valuable the night was. This type of feedback will also help lift the profile of technology with senior management.

"I ring the parents of my class each term and give them a 'State of the Nation' talk on their son's progress. Our parents also have online access to the course outline so they can see what's due and what's coming up. We try and connect that triangle between the student, the teacher, and the parent. It's a little more work for us but it has been successful."

And don't forget to involve the Deputy Principal, Brian says. "Because they're the ones who get all the strife and trouble. They don't get enough 'good stuff'. It's nice that the Deputy can see evidence of student learning and consequently see students in a different light."

Another way to lift the profile of Technology within the school is by involving students in school-related projects. Marietjie's Year 11 Food Technology class helped redesign the school's canteen offerings. To research the project and justify their decisions, and test reaction to their alternative offerings, the class ran sensory tests in the school foyer.

Reflections on student achievement

Brian, Marietjie, Steve, and Arthur have all had the pleasure of seeing students succeed, and it's something that gives them an obvious and continuing pleasure.

Steve: "Tim Taylor, one of my ex-students from about three years ago, keeps in contact. He completed a viticulture degree in Dunedin and has recently moved to Western Australia to pursue a career as a wine-maker. He has remarked that a lot of what we taught in the product technology course aligns to his current role and has proved to be very valuable. He found that some of the stuff that we covered at Year 13 aligned well with level one at university."

Brian: "A young scholarship winner told me that in his first year of university architecture he wasn't allowed to bring in clients or stakeholders. 'I think that's wrong,' he said. 'When I did technology and graphics you taught us that we have to consult a client, we had to consult stakeholders'. So he's now put architecture on hold for a year and is studying sociology, learning about how people react to different things. He's now doing a double degree in architecture and sociology – through his study of human behaviour he can bring into his practice a far greater understanding of the needs of stakeholders."

Marietjie: "By sharing the achievements of some students you can inspire others. Amy Lim (see **www.techlink.org.nz/student-showcase/food-and-biological/amy**) got a scholarship last year. She's a great student, and her success had a chain reaction within the school. This year we have other students interested in following in her footsteps. This increased interest in Food Technology in Year 13 has been helped by the fact that Technology is now an accredited subject for university-entrance. Amy has opted to do a business degree, but she said 'I now know how food companies work and I'm going to try and take my business knowledge back into the food industry'."

A call to action

Go ahead, commit yourself:

- talk to other teachers and visit their classrooms;
- spend some time exploring the Techlink website to get ideas on classroom practice, individual projects, enterprise links and implementing the curriculum, ;
- get in touch with your local Technology Advisor to discuss ways forward;
- attend the TENZ biannual conference to establish contact with other teachers;
- get your senior management alongside;
- involve parents and students;
- approach the journey as a series of steps, not as a leap into the unknown; and
- build on the successes you enjoy along the way and share them with others.

As Steve Ronowicz observed: "Once a teacher has started to think about teaching Technology they're-half-way there."

useful links

Curriculum support:	**www.techlink.org.nz/curriculum-support**
Case studies of teacher practice	**www.techlink.org.nz/case-studies**
TENZ, the professional body for Technology teachers	**www.tenz.org.nz**
Futureintech:, for industry support in your classroom	**www.futureintech.org.nz**

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Adopting Technology Education

Despite the fact that Technology became part of the New Zealand curriculum more than ten years ago, some teachers are still hesitant about changing their teaching approach to align to it.

Techlink has therefore asked four teachers to put the case for Technology and explain how they see the subject as an evolutionary step forward. What real benefits does Technology offer students? What satisfactions flow from teaching Technology well? What advice can they offer to those teachers ready to commit themselves all out to the subject?

Benefits – what Technology does and what it gives

In the mid 1980s Brian Allen was worried that students were being taught skills and knowledge that were fast becoming redundant in the world around them. Where, he asked, was the Technicraft programme leading kids? If the aim of the programme was to prepare students for a broad range of future career options, then it wasn't doing a particularly good job of it. And nor was it doing a particularly good job of mirroring practices in industry.

When Brian was first exposed to Technology he immediately recognised that the new curriculum provided the approach he was looking for. As well as equipping students with a set of hand skills, Technology teaches them to think and had the potential to prepare students properly for the changing world, he says.

"Technology education prepares students for a wide range of careers. It teaches students to think and this is applied through the reflection, justification and analysis that a student does as they become technologically literate. Take, for example, when a student uses a glue to join two pieces of material. As teachers we would encourage students to test a variety of glues and pick one that's got the right properties

the teachers interviewed

Brian Allen

A woodwork teacher since 1972, Brian sat on the 1983 Ministry of Education committee that looked at Technology teaching and led the change to the teaching of Technology in several schools. In 2004, as HOD Technology, he rejuvenated the Technology Department at St Patrick's College, Kilbirnie. In 2007, as Adviser with Massey and Waikato Universities, he worked extensively with North Island teachers to develop their understanding of Technology Education. (Brian has recently accepted a new position at the Correspondence School).

Marietjie van Schalkwyk

Marietjie specialised in Home Economics at university in South Africa and taught the subject for 14 years. When she immigrated to New Zealand in 1997 and started teaching at Wellington High School, she didn't feel comfortable with the idea of teaching 'Food Technology' (a term she had not heard of before) and focused on Home Economics-based units. However, Marietjie is now an enthusiastic Food Technology advocate, finding it a fascinating subject.

Steve Ronowicz

Steve trained as a teacher after 14 years as an automotive engineer. He taught at Feilding Agricultural High School for 13 years before moving to Tauranga Boys' College in 1999 to head the Technology Department. During his 22 years of teaching Steve has experienced the transitions through Engineering Shop work, Workshop Technology and Design Technology to the current Technology curriculum. Steve is currently on a one-year secondment to NZQA.

Arthur Johnstone

Arthur recently moved to Waihi College from the UK, bringing with him 21 years of teaching experience. Much of that experience was gained in the UK but Arthur also spent time teaching at an international School in Kuwait. He has a Masters Degree in Educational Management.

for the job. Apprentices need to know what type of glue to use when fixing say gib-board. Not every glue retains the flexibility yet also the rigidity required for gib-board."

With a background in Technology, a young apprentice will think about the properties of the materials they are using and will understand the need to choose materials with the right properties for the job at hand. They will come to work equipped with what many employers wistfully describe as initiative.

Steve Ronowicz also saw the potential of the new curriculum pretty quickly, because he recognised his experiences with product development aligned neatly with the processes outlined in the Technology curriculum. Experience had validated Steve's understanding and appreciation for the product development process and in Steve's eyes this experience also validated the new curriculum. And he came, in time, to appreciate that aspects of the achievement standards actually validated and extended his own understandings.

Marietjie van Schalkwyk says the greatest benefit Technology offers students is the opportunity it presents for them to think creativity within a sound framework of good project management.

"The teaching of Technology is based on project management processes. Students learn to think, analyse, and ask questions. They can't move forward unless they have first formulated the right questions and then found the answers."

When Arthur Johnstone introduced Technology to Waihi College, he was already a convert, having taught product design in the UK, which has a very similar approach and philosophy. However it was still a challenge, he says.

"The first task was to gain the confidence of the students and this was done by showing them examples of work produced by my students in the UK. I said 'if they can do it, so can you!' Secondly, I needed to develop the resources to teach Technology – the tools, machines and equipment. Then I needed to decipher NZQA standards and work out what the curriculum required (an on-going process)."

To teachers who feel that Technology tends to focus on planning and process to the detriment of the teaching of hand skills and will somehow disadvantage students heading for the trades, Arthur is adamant that Technology doesn't devalue skills.

"Far from it," he says. "Technology teaches skills relevant to the world that students will be living in. The world of technology is constantly changing, and the curriculum equips students to recognise and exploit this change.

"To argue that 'practical' teachers should focus on skills because New Zealand has a skills shortage misses the fact that such a narrow focus wouldn't actually provide what most students need or want. No student will ever use purely manual skills in their career. Even using the broadest of

In this project, which won a 2006 Transpower Neighbourhood Engineers Award, ten Year 5 and 6 pupils from Elm Park Primary School worked with an engineer to design and create a fountain for their primary school.

definitions, Arthur says, the number of students who will make their living in jobs where manual skills are the priority are limited and this has been the case for some time.

If Technology is properly taught, there is no reason why those who follow a trade-based course should be disadvantaged, he says. "I have no doubts that Technology is the best vehicle to keep practical subjects alive in schools."

"I have developed several Technology departments in the UK, making the transition from a more traditional approach to a process-led technological approach. In every case students have been given increased opportunities to express their creativity and realise their potential.

"I have always expected staff to work to ensure students produce high quality outcomes that demonstrate high level thinking skills and high level design and manufacturing skills. At no stage do I believe that following a technological approach has lead to a diminution of technical knowledge or practical skills. There is no reason why it should!"

Marietjie agrees: "Technology is the foundation of any craft. Students need to think about what it is that they want to do, look at what skills they have, what their options are and the process of making it all works. Technology enables them to understand the process behind any object."

Technology also supports a student's communication skills and literacy, she says. "The need to record all the data related to the development process is an opportunity for students to practice their communication skills. This is just one example of how Technology links with all of the other subjects taught in school. Thinking and expressing yourself clearly flows naturally out of each lesson."

Marietjie believes this sort of clear thinking can be applied to all aspects of life, not simply to careers in technological industries or trades. The same processes applied to finding a solution to a technological problem and managing a project can be applied to 'everyday life' – choosing transport, planning a camping trip, creating a healthy family meal, or coaching a sports team.

A good example of the universal applicability of technological practice is seen in Brian's approach to his job as an advisor. "I have to see a need and opportunity when I go into a school, I have to do my research, I have to collect some data to base some decisions on, I have to consult my clients, I have to consult my stakeholders, and I'm using tech practice in my role as Advisor."

Taking the first steps

If a teacher has come to recognise the benefits Technology offers, what's the best way to go about realising some of those benefits?

To Marietjie, the first step is clear: "Familiarise yourself with what's going on out there and see what's possible. Go to the Techlink website, and see what's being done. It's much easier when you look at the case studies. Some teachers have done some amazing stuff. The way Havelock North High School has structured their whole department. If you look at examples like that, it will motivate you.

"Get as much advice as you can from other people. I've found that other teachers are happy to share – visit their classrooms and see what they are doing. And then just do it, because it's really exciting. Had we not got the right advice, we would have never had our Green Bread unit"(see **www.techlink.org.nz/BP633-kiwi-bread**).

Go and visit a school that's doing Technology well in a similar context, Steve Ronowicz says. "Observe what they are doing and what their outcomes are. Form a relationship to support each other."

To find suitable schools for visiting, contact your local Technology Education New Zealand (TENZ) branch. TENZ branch meetings are an ideal way to network with like-minded teachers whose experiences can be invaluable. To become a member of TENZ and participate in local branch meetings visit **www.tenz.org.nz**

In this project, Technology students designed and manufactured original lighting units for a local city nightclub, in consultation with the client, university design students and industry professionals.

Take small steps, says Brian. "Start modestly and gradually. Start off with something small and simple that offers good chances for success and positive reflection, then build on that."

"A helpful strategy at St Pat's College was to use Futureintech Ambassadors (**www.futureintech.org.nz**) who visited regularly and worked with students. These young people working in Technology help students to be more realistic in their learning and gave them real and practical examples of how they solved a need or an issue. Students built up a relationship with the Ambassadors, who helped them with key factors, planning strategies for practice, being more specific in evaluations and writing a brief to enable a measurable outcome, and suggested materials to use they had not considered."

Winning the support of the school

Ok, so you're convinced. But what about the rest of the department? What about senior management and the Board of Trustees?

The key, Steve believes, is communication. "Technology leaders and teachers need to communicate to senior management the benefits of Technology. They need to explain what they plan to do, why they want to do it, and most especially how it benefits students."

But be realistic and think strategically, he says. "School budgets can be tight. Securing funding for resources and/or upgraded premises may need to be a medium term goal."

Don't try and do too much at once, Brian cautions: "Don't try and win over the Board and the principal in one year. Have some student success around some small examples in your classroom. Expose the Board to them. Photograph the outcome, record the outcome, so that the Board can see it. And it's not only the board, pull in the parents as well."

Parent support is crucial. At St Pat's Brian deliberately set out to court this support, with some success. When a student did something particularly good, he made sure people knew about it. "I wanted the Board, the principal and the parents to know. I'd tell the student: 'Go home and tell your parents'. Then I'd ring up and ask: 'Did your son come home and tell you?' If they said 'Yes, it was good!', I'd say 'Well if it means something to you, tell the principal'. So then the principal discovers these wonderful things going on, and he goes and congratulates the teacher, and the teacher says to the principal 'Well how about sharing that with the Board? So the principal does, and ultimately the Board will ask the teacher to come back to the Board and share what they are doing. Then you've got the cycle going. So you have to be thinking a little bit to get that going."

Marietjie suggests a similar strategy. "It all starts with the teacher being motivated to deliver Technology. No principal will deny an enthusiastic teacher an opportunity. We do a lot of show-and-tell about students' success and once you have

Strategies to implement the 2007 curriculum in your school

The teachers featured here come from varying backgrounds and disciplines. All share a dedication and passion for Technology as a subject and have, through perseverance and initiative, used both the old and new curriculums to produce impressive results in Technology classrooms. All have taken an active role in making the curriculum work for them.

For teachers looking to make the shift, there are a number of strategies to keep in mind to make the transition rewarding and achievable for both you and your students.

In Malcolm Howard's experience, there are several key elements that can help with implementation. "It's so important for a school that you bring the various areas of Technology together as one faculty. For teachers, I suggest getting together with other Technology teachers to share ideas and make sure that you familiarise yourself with the huge amount of resources that are now available for Technology teachers."

> *"It's important that students have lots of chances to make mistakes without it being a big issue, so I go round to local businesses who are always keen to help with free materials."*

Steve Jeffares feels that Technology can tap into the skills and knowledge of any teacher no matter how diverse or unrelated they may seem to the classroom

"I think it's a career where you use everything you've learnt. To new teachers I would say: Use your entire breadth of knowledge within the classroom – for example, if you're into the guitar maybe one year your students could make acoustic guitars."

> *"My advice is to stop teaching students and start mentoring them. Never believe that students can't do something, because they can do amazing things as long as you don't hold them back."*

Steve also believes regular professional development is essential in keeping up with such a dynamic teaching area and can help immensely in keeping up with the interests of the students.

"We need to be able to identify where students are at, so we can see which doors to open and guide them, adding specialist knowledge when they need it."

Steve acknowledges that different schools require different approaches and recommends adapting projects to the specific demographics and interests of particular groups of students to capture their enthusiasm. For those with limited resources, he recommends being creative with what you have.

"It's important that the students have lots of chances to make mistakes without it being a big issue, so I go round to local businesses who are always keen to help with free materials."

For those new to Technology or introducing it to a school, Diana Eagle recommends starting slowly. "Take baby steps, don't think that you can do the whole thing well all at once, just concentrate on your strengths and bring that to the Technology curriculum to get that going first. Also be connected to your students enough to know what they can cope with. So think carefully about how you present materials to students so that you can bring them on board and keep them motivated and interested in what you're trying to present to them."

Ian Watson also emphasises the importance of the teacher/student relationship and how it has changed with the new curriculum.

"My advice is to stop teaching students and start mentoring them. Never believe that students can't do something, because they can do amazing things as long as you don't hold them back. The other thing is to always keep it real. If they ask a question, don't give them the answer but ask them to research and find out for themselves."

In summary, to implement a successful Technology programme:

- Work with your existing strengths and those of your school and colleagues.
- Actively seek PD and support from the wider community.
- Communicate with other schools and teachers to share ideas.
- Put your name forward to be an external assessor.
- Join support networks in your area such as: Technology Education New Zealand (TENZ); New Zealand Graphics and Technology Teachers Association (NZGTTA); Home Economics and Technology Teachers Association New Zealand (HETTANZ); New Zealand Association of Computing and Digital Information Technology Teachers NZACDITT.

Find out more...

To find out more about building a successful Technology programme, a good starting point is the curriculum support section on the Techlink website:
www.techlink.org.nz/curriculum-support

Subject association links:

www.tenz.org.nz
www.nzgtta.co.nz
www.hettanz.org.nz
nzacditt.org.nz

Teacher Talk 2

techlink
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Implementing the Technology curriculum – then & now

The Technology curriculum was gazetted in 1995 and evolved over time to keep up with new teaching ideas and attitudes. To gain some insight into that evolution, Techlink talked to four teachers about how the 1995 curriculum brought about challenges and encouraged breakthroughs, and on the changes the 2007 curriculum has brought since.

We hope their experiences help provide a way forward for Technology teachers in translating some of the concepts within the curriculum into successful classroom practice.

The impact of the 1995 curriculum

Malcolm Howard was the HoF of Katikati College when the 1995 curriculum was released and he found it challenging to implement for a number of reasons. "It was quite a radical change for schools in terms of introducing a new curriculum into a very traditional school structure. It was such a vague document with nowhere near the level of support we now have behind it. We also had the weird situation where the seniors were under the old system of Design Technology and Home Economics, while we tried to teach Technology to the juniors, so implementing the new curriculum with these factors was very hard work."

Other teachers and schools shared these concerns. Diana Eagle felt comfortable with the old Technicraft and manual practices and was apprehensive about making the significant change to the 1995 curriculum. She also found that her school was reluctant to make the move.

"At that point, Technology was being introduced across all the subject areas and it became clear very early on that it wasn't going to work. Everyone else was very busy with their own subject and didn't see Technology as something they really needed to look into. So because people didn't get on board, it didn't really catch on."

Diana felt that her Home Economics background gave her a good grasp of

The teachers we interviewed...

Malcolm Howard

Malcolm has taught Technology for 16 years specialising in Year 7-13 ICT but also teaching in other areas of Technology at a junior level. Malcolm was made Head of Faculty at Katikati College in 1996 and was responsible for establishing a Technology faculty in line with the new curriculum guidelines. Malcolm was also a member of a Beacon Practice partnership with Hillcrest High School that focused on teaching ICT within Technology. Malcolm has a Bachelor of Engineering from Canterbury University and is currently an advisor in Technology at Waikato University

Ian Watson

Ian was a tradesman for Air NZ before training as a teacher at Auckland Secondary Teachers' College. Starting at Manurewa High School before moving to Otumoetai College in Tauranga in 1999, Ian has over 27 years teaching experience in the field of Technology and has followed the changes in this area closely from the original 1995 document through to the 2007 curriculum. Ian has also worked as an external assessor for schools, which he feels gave him invaluable experience and insight into the different ways Technology can be taught.

Diana Eagle

Diana Eagle was a Home Economics teacher at Tararua College for ten years before the introduction of the new curriculum in 1995. While Diana admits to having difficulties with the document initially, she persevered to become a pioneer in making the transition from Home Economics to Food Technology. She has played a key role as a lead teacher in curriculum and qualifications related professional development initiatives and has considerable experience in both internal and external assessment for NCEA.

Steve Jeffares

Originally a builder, Steve moved into architectural design before training as a teacher at Waikato University in 1995. His first position was at Whakatane High School where he was the HOD Technology until 2004, when he left to complete a diploma in Technology education from Massey University. He now teaches at Edgecumbe College and also works with provincial rural schools, helping them make the shift from manual training to a more broad Technology approach.

technological practice, but there were other elements within the 1995 document that she thought weren't easily applied to her work in the classroom.

"I found the Technology document hard to read and understand. As for the examples, I felt they didn't relate well to the classroom and I couldn't see how you could really bring it in very easily, often they were just one-off ideas that couldn't be used for a programme."

It wasn't until the introduction of NCEA that Diana felt the school really embraced Technology, with teachers attending NCEA professional development days. Initially this raised more concerns for Diana and her fellow teachers as many unfamiliar concepts were introduced.

"Of course we'd talked about Technology before, but when they started talking about 'plan of action' and 'formulate a brief' I remember thinking 'What the heck! What is this all about?' So while it was intimidating, it did push me into going away and being proactive about finding out how to do things I wasn't sure about. So I just got stuck in and started developing units of work."

At the time, teachers reacted to the document in different ways, with some seeing it as a step in the right direction, some criticising its lack of direction, and others ignoring it altogether. However, there seems to be general agreement that in those first years the support for teachers attempting to implement the curriculum was insufficient.

Ian Watson also tried hard to implement the curriculum. "I felt pretty comfortable with the old Design Technology, so when the new curriculum came along there wasn't much direction and I felt the professional development was quite poor. Without that support in place I had a real fear of not being able to perform for the students, as I didn't know what to do to get them to pass or to gain excellence."

The introduction of the 1995 curriculum had differing responses from many teachers. With any new initiative there are bound to be teething problems and while many teachers felt overwhelmed by the new document there were also positive responses to the underlying ideas within it, with some seeing the potential more immediately than others.

Approaches to the 1995 curriculum

While many teachers felt intimidated by or had problems with the curriculum, many took a proactive approach. Malcolm Howard was pragmatic about the challenge of implementing the new curriculum within a larger framework and set about the task of marrying the old structure with the new.

"It was a long, slow process and took a lot of perseverance. One of the key strategies of implementing the 1995 curriculum was trying to pull together the various historical areas that were all part of Technology – such as Workshop Technology, Home Economics and Computing – to make one designated Technology faculty. Another important factor was negotiating with the curriculum committee to get space on the timetable for Technology."

To deal with her concerns, Diana Eagle tried to do whatever it took to make her existing strengths work within the curriculum and to improve her knowledge in areas she felt were lacking.

"I just got stuck in and started developing units of work. As I had no degree, the science and food chemistry side was difficult for me. So I contacted a food technologist to help me with those aspects. This gave me room to concentrate on my strength which was classroom practice, going out and finding stuff like standards of production. Because I was unfamiliar with Food Technology and technological practice it was basically learning on the job. This was quite a shift for my students as well, but I kept it pretty basic and they handled it well."

Diana also became involved in external assessment which gave her access to other Technology teachers with successful ideas and practices that she could apply in her own classes.

Venturing further afield than his own classroom also helped Ian Watson to address any concerns he was having with applying the new curriculum to the classroom.

"I talked to a lot of my peers and made contact with other technical teachers around the place whom I saw as being successful," says Ian. "I also had a really good look at the programmes that had already succeeded to see what they were doing right. Eventually I was chosen to become an external assessor for school for NCEA and that gave me invaluable insight into what other people were doing around the country which I thought was great professional development."

Steve Jaffares dealt with his concerns about the clarity and delivery of the curriculum by concentrating on the essential elements that he agreed with and translating his understanding of these to the students.

"My original view of the curriculum was that it was a good problem solving machine that differed from the old curriculum's 'build this' approach," says Steve. "So we made sure that we promoted the philosophy and intent of the curriculum as I had summed it up and condensed it down to what we thought was the critical direction of it – what we thought was really good for the students' problem solving."

Left: Ian Watson and his Year 11 students making a dirt surfer – see www.Dirtsurfer.com.

Thoughts on the 2007 curriculum

As seen from the four teachers' comments, initial reactions to the 1995 curriculum document were varied. As with any new endeavour ,the Technology curriculum had to find its feet and has certainly had its problems within those first few years.

Fourteen years have passed since then and that original document has been refined and changed to address many of the issues faced at first, as well as to keep up with current developments in Technology and in teacher practice.

In 2007, the new Technology curriculum was introduced, revitalising an area that has sometimes been taken for granted within school infrastructures.

Malcolm Howard is impressed with the changes it has brought.

"It's really 'chalk and cheese' when you compare the introduction of the 2007 curriculum with the 1995 one, where you didn't really know what was required at each level. The new curriculum is so much more specific, with measurable objectives where you can see the progression up the curriculum levels. The support around it has improved too.

> *"I just love it! I absolutely love it. It's just so dynamic and exciting. I just feel energised by the whole curriculum...*

"This time around we got layer after layer of support material for introducing the curriculum, with things such as the curriculum support material, teaching strategies resource and case studies on the Techlink website. The other hugely significant difference is the fact that our seniors will have the opportunity to be doing courses out of the Technology curriculum at the same time as the juniors, so that's going to be a significant advantage."

Steve Jaffares has always had very clear ideas about what was wrong with the old curriculum but is happy to report that many of those concerns have since been answered. "The new curriculum is superb and I think it is quite remarkable how it has evolved and been refined with all the bad stuff taken out of it."

> *"This time around, we got layer after layer of support material for introducing the curriculum, with things such as the curriculum support material, teaching strategies resource and case studies on the Techlink website.*

Ian Watson was also apprehensive about the 1995 curriculum due to its lack of direction and unfamiliarity but has since become a full convert to Technology education within the 2007 curriculum.

"I just love it! I absolutely love it. It's just so dynamic and exciting. I just feel energised by the whole curriculum and that's because I've done the hard yards, asked the hard questions and got off my bum and talked to people who know the answers.

"With the 2007 curriculum you could suddenly do Technology that was real and I think that was a big thing. If the students decided what they wanted to make and did the research or the technological background on that project, then it became real, and once it was real they got really hooked."

While Ian was reluctant to leave Design Technology behind he is positive about the new direction.

"Design Technology was more teacher directed so it was impossible to create that level of student involvement and enthusiasm for making a real product. Whereas Technology is more student directed, so my role now is more like mentoring than teaching."

For Diana Eagle the key competencies as laid out on the front end of the document have created opportunities for teachers to work to their individual strengths.

"I like the new curriculum because it has brought all the different subjects together on the same page and you're finding your focus from the key competencies, values, principles and the pedagogy rather than just ticking all the boxes within your area. With the three components, I like it that people will be able to find their strengths, where if they're really good at the Practice stuff they can say 'ok I'll do mostly that in this unit and dabble in Knowledge and maybe a little Nature.'"

Diana also believes that many of the problems she and other teachers faced in 1995 in translating the curriculum to the classroom may be a thing of the past.

"The new curriculum is a lot more user-friendly and realistic for teachers, and, because of that, students benefit and aren't put into situations where they have no idea what is expected of them. I know that it is still evolving, but I'm pretty impressed with what I've seen so far."

> *"The new curriculum has brought all the different subjects together on the same page and you're finding your focus from the key competencies, values, principles and the pedagogy rather than just ticking all the boxes within your area.*

It's this evolution that Steve Jeffares believes is integral to making a sustainable document that works with the necessary developments within Technology.

"One thing I think we've all learnt is that we can't lock it in for so long. What is valid pedagogical understanding of the curriculum in 1995 is not going to be the same in 2000. This discipline is in a state of flux and it's always going to be like that because it's a changing world and a changing landscape.

"Even those purists who were saying 'technical skill has no place in a technology curriculum' are now saying 'hang on a second, maybe it actually strengthens and underpins our Technology curriculum'. So there's been a shift in many camps."

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Technology Education New Zealand

TECHNOLOGY EDUCATION NEW ZEALAND

TENZ
Technical Group Administrator
PO Box 12241
Wellington 6144

APPLICATION FOR INDIVIDUAL MEMBERSHIP

I hereby apply for Individual Membership of the Technology Education NZ and supply the following details:

Title: Mr / Mrs / Miss / Ms / Dr Other (please state) _____

First Names:_____ Surname:_____

Preferred First Name: _____ Date of Birth (for office use only):_____

Home Address: _____

_____ Home Phone (optional): _____ Mobile:_____

Employer Name & Address: _____

_____

Current Position: _____ Business Phone:_____

Email (Work): _____ Email (Home): _____

Preferred postal address: Home / Work (please delete one) Preferred email address: Home / Work (please delete one)

Are you now, or have you ever been, a member of IPENZ or affiliated IPENZ groups?

No / Yes (If yes, please provide IPENZ number): _____

Send no payment with this application. On acceptance of your application you will be notified and invoiced by IPENZ.

DECLARATION: *In the event of my admission as an individual member, I agree to be bound by the TENZ rules. I agree that the majority of official correspondence will be forwarded to me by email.*

Applicant's Signature: _____ Date: _____

Technology Education New Zealand

Join TENZ — your professional Technology Education network

TENZ – Technology Education New Zealand – is the professional network which actively promotes and supports Technology Education throughout New Zealand.

TENZ:

+ fosters the development of Technology in the New Zealand Curriculum.
+ develops and maintains national and international links between those working in Technology Education and with the wider technological community.
+ supports professional, curriculum, and resource development in Technology Education.
+ encourages research in Technology Education.
+ organises a national biennial Technology Education conference.

THE TENZ NATIONAL COUNCIL WORKS ON THE BEHALF OF TECHNOLOGY EDUCATORS TO:

+ keep well informed on the NZ Curriculum and Learning Area statement in Technology.
+ liaise with IPENZ to promote Technology Education and in collaboration with them meet with ITO (Industry Training Organisations), MOE, universities, polytechs.
+ build strategic links to other professional organisations – RSNZ, NZIFST, ITEA (international).
+ instigate dialogue with NZGATTA, HETTANZ to establish links and shared vision.
+ regularly publish **t-news** informing the technology community of developments nationally and internationally (National Council members contribute).
+ enlighten political movements of the current thinking and practice in Technology Education, lobby government for quality facilities and support for technology teachers.
+ encourage research in Technology Education – proposals to the Ministry of Education.
+ help promote and be involved in selection panel for Technology Teacher Fellowships with the RSNZ.
+ communicate current Technology Education practice by presenting papers and workshops at National and International Technology Education Conferences.
+ reinvigorate Regional TENZ networks in six key regions.
+ further develop TENZ website, including techlink and other useful sites.
+ listen to the needs of our Technology teachers and their students' learning.

BECOME A TENZ MEMBER AND SUPPORT TECHNOLOGY EDUCATION

TENZ membership is open to all Technology educators, and those interested in Technology education in New Zealand. To become a TENZ member, visit www.tenz.org.nz.

For more information, contact: National TENZ Council Chair Wendy Fox-Turnbull, wendy.fox-turnbull@canterbury.ac.nz.

TECHNOLOGY EDUCATION NEW ZEALAND

TENZ
Technical Group Administrator
PO Box 12241
Wellington 6144

APPLICATION FOR SCHOOL MEMBERSHIP

I hereby apply for School Membership of the Technology Education NZ and supply the following details:

School Name: _____

School Address:

_____

Contact person:
Title: _____ First Names: _____ Surname: _____

Date of Birth (for office use only):_____ Email: _____

Nominees contact details:

Nominee 1:
Title: _____ First Names: _____ Surname: _____

Date of Birth (for office use only):_____ Email: _____

Nominee 2:
Title: _____ First Names: _____ Surname: _____

Date of Birth (for office use only):_____ Email: _____

Nominee 3:
Title: _____ First Names: _____ Surname: _____

Date of Birth (for office use only):_____ Email: _____

Nominee 4:
Title: _____ First Names: _____ Surname: _____

Date of Birth (for office use only):_____ Email: _____

Nominee 5:
Title: _____ First Names: _____ Surname: _____

Date of Birth (for office use only):_____ Email: _____

Nominee 6:
Title: _____ First Names: _____ Surname: _____

Date of Birth (for office use only):_____ Email: _____

Nominee 7:
Title: _____ First Names: _____ Surname: _____

Date of Birth (for office use only):_____ Email: _____

Nominee 8:
Title: _____ First Names: _____ Surname: _____

Date of Birth (for office use only):_____ Email: _____

Nominee 9:
Title: _____ First Names: _____ Surname: _____

Date of Birth (for office use only):_____ Email: _____

Send no payment with this application. On acceptance of your application you will be notified and invoiced by IPENZ.

DECLARATION: *In the event of my admission as an individual member, we agree to be bound by the TENZ rules. We agree that the majority of official correspondence will be forwarded to us by email.*

Contact person's signature: _____ Date: _____

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4	$151.75
5	$179.00
6	$206.25
7	$233.50
8 - 10	$260.75

Please note that the above fees are GST inclusive.

Subject Associations

NEW ZEALAND GRAPHICS AND TECHNOLOGY TEACHERS' ASSOCIATION (NZGTTA)

NZGTTA was established as a support network for teachers of Graphics and Technology related subjects in primary, intermediate, and secondary schools.

The association holds annual general meetings in which association policies and activities are discussed and are attended by delegates from fifteen regions. Professional development is available through seminars, visits and related activities from relevant business with educational interests.

Regional branches hold regular meetings (usually one per term) during the school year. These include visits to related industries, guest speakers, and provide an opportunity for teachers to share programmes and general classroom teaching materials and resources.

Branches also circulate information of interest to teachers received by them from the National Executive, Ministry of Education, New Zealand Qualifications Authority, and teacher training institutions.

For further information on branch membership, please visit
www.nzgtta.co.nz

HOME ECONOMICS AND TECHNOLOGY TEACHERS' ASSOCIATION OF NEW ZEALAND (HETTANZ)

HETTANZ is the official subject association for teachers of Home Economics, Technology and the allied fields of fashion and design, textiles, soft materials, health, human development, human nutrition, hospitality and life sciences.

HETTANZ is recognised as a vital and visible organisation actively working towards the objectives set and providing quality services and resources for the membership.

Objectives

- To provide a national voice and to act as a forum where all teachers of Home Economics and Technology can share ideas and experiences
- To promote the professional development of Home Economics and Technology teachers and to provide professional support
- To promote the teaching of Home Economics and Technology at all levels of the education system and beyond and to unite all teachers of Home Economics and Technology
- To encourage and foster research related to Home Economics and Technology education
- To provide liaison with international organizations and other national associations for the teaching of Home Economics and Technology

To find out more please visit
www.hettanz.org.nz

NEW ZEALAND ASSOCIATION FOR COMPUTING, DIGITAL AND INFORMATION TECHNOLOGY TEACHERS (NZACDITT)

NZACDITT is a new association created for teachers of Computing, Digital and Information Technology subjects and is run for teachers to the benefit of students and teachers involved in the teaching and learning of Digital Technologies. The aim of the association is to create a community of teachers where they can share resources and speak with one voice to get recognition and support for the subject area.

To find out more please visit
www.nzacditt.org.nz

Useful sources

TECHLINK'S PROFESSIONAL DEVELOPMENT EVENT CALENDAR

Techlink's Professional Development Event Calendar promotes professional development opportunities in Technology. The calendar advertises events from the Ministry of Education, members of the TENZ council, Technology advisors, and NZQA moderators. Events are categorised regionally so teachers are able to find the latest professional development opportunities available in their local area.

TECHLINK'S TECHNOLOGY NEWS

Techlink's Technology News page provides an overview of site updates and brings together; links to technology related news articles and clips, professional development events, and other Techlink news. The article archive section provides a range of news articles and clips which can be used as a resource to engage students and generate classroom discussion. The Technology News page is updated regularly.

TECHLINK EMAIL ALERTS

Techlink distributes monthly alerts to keep teachers up-to-date with the latest resources and material available on the Techlink site and any other Techlink news that may be of interest our subscribers.

To subscribe to Techlink alerts please email **comms@techlink.org.nz**

E.NZ MAGAZINE

The e.nz magazine features articles which cover a range of technological contexts and engineering disciplines including: energy, materials, structural, mechanical, process, manufacturing, information and communication. Feature articles are supplemented by short news items from New Zealand and abroad, highlighting current and potential future developments in technology and engineering. Regular reviews of books of interest to a technology and engineering audience are included. e.nz is a published six times a year and is available at most major bookshops for $7.90 or $40 a year for postal subscriptions to New Zealand residents with discounts available for New Zealand schools and financial members of Technology Education New Zealand (TENZ). **http://e.nz-magazine.co.nz**

TE KETE IPURANGI

Te Kete Ipurangi (TKI) – The Online Learning Centre. TKI is a bilingual portal and web community which provides quality-assured educational material for teachers, school managers, and the wider education community. It is an initiative of the Ministry of Education. For more information please visit **www.tki.org.nz**

INTERNATIONAL HANDBOOK OF RESEARCH AND DEVELOPMENT OF TECHNOLOGY EDUCATION

The *International Handbook of Research and Development of Technology Education* by Dr Alister Jones and Professor Marc de Vries looks at the development of Technology education in a global sense. This handbook covers the underlying philosophy of Technology education, curriculum development, teacher education, relations with other subject areas, assessment, and educational research. Specific examples in various countries including New Zealand are referred to.