MINISTRY OF EDUCATION
Te Tāhuhu o te Mātauranga

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National Newsletter: Technology

Information and resources for middle leaders in secondary schools | Term 2 2014

Kia ora, Tālofa lava, Mālō e lelei, Kia orana, Bula vanaka, Fakaalofa lahi atu, Talofa ni, and greetings to you all.

In this issue we cover:

- The national technology workshop series.
- What is meant by the term 'technological experiences'.
- The updated safety guidance manual - *Safety in Technology Education: A Guidance Manual for New Zealand Schools*.
- Some reminders about authenticity.

Nga mihinui
Malcolm and Cheryl
National Co-ordinators - Technology

National workshop programme – term 2

As outlined in the term one newsletter these workshops are for middle leaders of technology and will cover:

- Reviewing and revising a junior technology programme.
- Strategies to support students to be successful at curriculum levels 6, 7, and 8.
- The transition from junior to senior technology.

The venues and dates within the regions covered by Team Solutions are:	The venues and dates within the regions covered by Te Tapuae o Rehua are:
Hamilton – 7 May	New Plymouth – 7 May (cancelled)
Tauranga – 21 May	Wellington - 8 May
Napier – 28 May	Christchurch - 21 May
Gisborne – 29 May	Dunedin - 26 May
Whangarei – 4 June	
Auckland – 6 June	

To register
To attend Auckland and Whangarei workshops, email Nicole Price at n.price@auckland.ac.nz

For the Hamilton, Tauranga, Napier, or Gisborne workshops, email Malcolm Howard at m.howard@auckland.ac.nz

To attend workshops in New Plymouth, Wellington, Christchurch or Dunedin, fliers will be sent to all schools. Please complete the enrolment form and return to: University of Otago College of Education, Education Support Services, email: essadmin@otago.ac.nz

Note there is no cost to register as the workshops are funded by the Ministry of Education as part of its support for the Secondary Student Achievement professional development.

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Technological Experiences

This terminology is used in the assessment specifications and the scholarship standard so we thought it would be a helpful to add some clarity to this.

Levels 1, 2 & 3 NCEA

The assessment specifications at NCEA Levels 1-3 contain the following statement:

"Reports that do not relate to a candidate's specific technological experiences are unlikely to succeed." This situates the experiences in the context of what the student is going to write their report on as a result of their learning.

Scholarship

In addition the scholarship performance standard states as the outcome "The student will use knowledge of technology to demonstrate synthesis, integration, justification, and critical reflection on technological experiences."

Technological experiences are integral to Level 6, 7 & 8 of the New Zealand curriculum as a result of being part of the assessment specifications. Therefore it is critical that we understand what this term means within the context of a programme of learning and student evidence for assessment.

What are Technological experiences?

Technological experiences are embedded in the broad range of learning experiences students undertake within their course. They include a range of the following:

- Undertaking technological practice to develop authentic technological outcomes
- Generating new knowledge and acquiring a range of skills and procedures
- Innovation, adaptation and integration of knowledge, skills and competencies
- Developing and critiquing case studies to inform understanding
- Exploring technological issues – ethics, social acceptance, technical feasibility
- Undertaking observations and interacting with practicing technologists.

So what does this mean in the teaching and learning programme?

Teachers should be aware that this is not just about technological practice and students creating their own outcomes but using the outcomes and practices of others to inform their understanding and at times their own practices in developing technological outcomes.

The aim of using a broad range of technological experiences particularly at levels 2 and 3 is to extend student knowledge beyond their own practices. This enables students to demonstrate conceptual understanding and practice related competencies that they would otherwise not have experience of within the school context.

So when programme planning to incorporate a range of technological experiences it is critically important to scaffold learning to support students to write about their technological experiences. This means we need to:

- Embed a range of experiences within a programme of work
- Take and integrated approach to the external material built over time and reflected upon throughout the year
- Support students to explicitly articulate how new understanding gained from this range of technological experiences informs practice and knowledge.

What's new?

Technology in the NZC

The Curriculum support section on Technology Online is now called Technology in the NZC. The section is also undergoing some changes to the content and structure. This is a part of ongoing work to make key information about the technology curriculum more accessible and to support teachers more effectively. Your feedback is very welcome. Please email feedback to technology@tki.org.nz

technology.tki.org.nz/Technology-in-the-NZC

Technology in the *School Journal* and *Connected*

In this new section on Technology Online, find links to *School Journal* and *Connected* articles that feature technology content. Each item includes a summary and discussion starters that link to the technology indicators of progression.

http://technology.tki.org.nz/Resources/Technology-in-the-School-Journal-and-Connected

2014 version of the standards

All the achievement standards at levels 1, 2, and 3 have been updated and most are now version 2 (except for some level one standards which are now version 3). Ensure you are using the correct version of the standard.

www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/technology/levels/

Safety in technology education

In the last newsletter we alerted you to the new publication *Safety in Technology Education: A Guidance Manual for New Zealand Schools* which had just been released, and is available on Technology Online at http://technology.tki.org.nz/Curriculum-support/Safety-in-Technology-Education

So now that you have the revised manual, what next?

The teacher's responsibility
We recommend that all teachers read section 3 – 'Responsibilities of teachers' on pages 18-19, and then read the chapter that is specifically related to their own specialist area, and any relevant appendices.

Changes to recommended year levels for using machinery
Appendix 5 contains the recommended year levels for using machinery. There have been a number of changes of recommended year level from the previous version of the guidance manual, and the list has been expanded to include machinery not mentioned in the previous version. It is important that teachers in *all areas* of technology familiarise themselves with, and comply with, the recommendations in appendix 5.

The definition of safety
As you read through this manual you will see that a wide definition of safety has been adopted in the manual. It is not just about physical safety but includes emotional, cultural, and environmental safety, as well as the safety of the end-users of the products or systems that result from technological practice.

Identifying and assessing hazards
For each equipment or material hazard you identify you then need to plan how you will deal with that hazard by elimination or isolation or minimisation.

- Will you eliminate the hazard by substituting an alternative method or piece of equipment or material?
- Will you isolate the hazard by using adults or more senior students who are competent to use this equipment or material?
- Will you minimize the risk by undertaking a skills-teaching sequence with students to ensure they all understand and can apply the necessary protocols of use, including the use and purpose of personal safety equipment, before using the equipment or material?

Documentation
Appendix 1: 'Template for safety planning in technology education' should be completed for each unit in technology at your school. This follows a risk management approach of identifying and assessing potential risks with the equipment and materials being used in particular units and specifying how these risks will be managed in terms of elimination, isolation, or minimisation. Appendix 2: 'Completing the safety planning template – notes and examples' will be a useful resource when completing the template in Appendix 1.

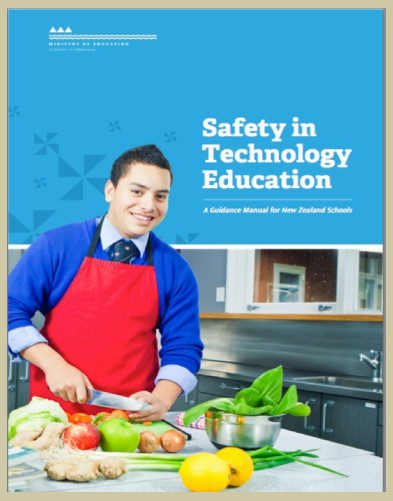
Implications for trades academies and other tertiary courses
Boards of Trustees should work with the tertiary provider(s) to develop a Memorandum of Understanding that sets out the procedures to ensure the health and safety of students involved in these programs. Refer to p17 and p61 for further details.

Emergency procedures, and accident reporting
Even when hazards are identified and carefully planned for accidents can happen. Are your emergency procedures clear? Are accidents recorded, reported, and investigated?

What to do if you have concerns about safety
If you have concerns about safety and the hazard cannot be eliminated, isolated, or minimized, you need to report this in writing to the Board of Trustees (through your principal).

Safety planning manual

Have you got a copy of the new *Safety in Technology Education* guidance manual yet?



technology.tki.org.nz/Curriculum-support/Safety-in-Technology-Education

"Safe practices, as promoted by the Ministry of Business, Innovation and Employment should be viewed as an integral part of the planning for and delivery of technology education". This statement is from the introduction section of *Safety in Technology Education: A Guidance Manual for New Zealand Schools*.

We would recommend that all technology HODs and individual technology teachers take time to review this important new publication, and put it on the agenda at your next faculty or department meeting.

As a faculty or department, ask yourself these two important questions:

1. Are our safety practices in line with current recommendations and accepted best practice as outlined in this guidance manual?
2. Is our safety planning documentation up to standard?

Authenticity

Adapted from http://www.nzqa.govt.nz/providers-partners/assessment-and-moderation/assessment-of-standards/generic-resources/authenticity/

What is authenticity

Authenticity is the assurance that evidence of achievement produced by a learner is their own.

What does it mean for teachers and students?

During the assessment process there is the possibility for learners to use material that is not their own by:

- Copying from another person or source (plagiarism). Teachers are required to verify that the work submitted has been produced by the learner. It is important to assess and manage the potential for work to have been copied, borrowed from another learner, photocopied from a book or downloaded from the internet.
  It is appropriate for learners to learn from others and to gather information from a variety of sources such as case studies or practicing technologists and other students and practitioners. However, it must be clear that the work to be assessed has been processed and produced by the learner.
- Having too much guidance from the teacher. Care must be taken to ensure teachers do not assist learners to complete work for assessment. The assessed work must be the work of the learner including when performance is in a group context. For example, whole-class brainstorming cannot include the answers to specific questions in an assessment, but could include topics that learners then go on to research individually. But, too little teacher guidance and formative feedback or intervention is also a risk of students not completing an appropriate report or external assessment.
- Accessing specific answers for the assessment activity because it is publicly available or dependent on the use of specific exemplars that have not changed from year to year. This means that teachers must alter assessment materials from year to year, class to class by changing specific figures or specifications, the brief, measurements or data sources, setting a different context or topic to be investigated or a different text to use for research.

Strategies teachers can use to ensure authenticity include:

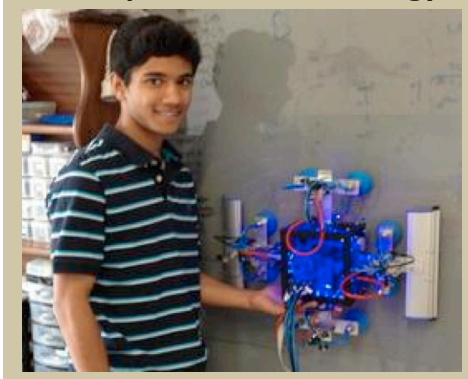
- Modifying assessments available from publicly available sources
- Changing the context of the assessment from year to year
- Supervising the research process by including regular checkpoints
- Requiring plans, resource material and draft work to be submitted with the final product
- Keeping on-going work on site
- Oral questioning to confirm a student's understanding or requiring a repeat performance where there is doubt
- Being familiar with or controlling the resources available
- Controlling group work by breaking the task into group and individual components
- Requiring a signature on an authenticity statement to highlight the issue for both parents and students.

Students are expected to:

- Submit their own work to reflect their understanding of the context or topic
- Reference work appropriately. All information from sources other than the student's own work must be acknowledged at the place in the work that the information is used
- Interpret and rewrite the information in their own words and make meaning from synthesised material
- Relate the information to a specific context or example
- Comment meaningfully on the information to demonstrate their understanding.

Useful links

2013 top scholar in technology



Standing on a ladder to clean windows on the top story of a house is not without its risks. Sohail Abdulla's robotic window cleaner made this task safer for his father and won him top technology scholar in 2013.

http://technology.tki.org.nz/Resources/Student-showcases/Construction-and-mechanical-technologies/Robotic-window-cleaner

Literacy requirements for University Entrance

10 credits from selected standards (5 credits in reading and 5 credits in writing) are required to meet the University Entrance literacy requirements.
www.nzqa.govt.nz/qualifications-standards/awards/university-entrance/literacy-requirements/

The following standards from the technology matrix count towards UE literacy – for reading, writing, or either reading or writing.

Approved for UE reading:
91615 - generic technology 3.8
91616 - generic technology 3.9
91619 - generic technology 3.14
91641 – digital technologies 3.50

Approved for UE writing:
91612 - generic technology 3.5
91613 - generic technology 3.6
91614 - generic technology 3.7
91617 - generic technology 3.10
91638 – digital technologies 3.47

Approved for either UE reading or writing:
91632 – digital technologies 3.40
91636 – digital technologies 3.44