

# National Newsletter: Mathematics and Statistics

Information and resources for middle leaders in secondary schools | Term 1 2013

## Introduction

Welcome to 2013. We hope that you have enjoyed a restful summer break and looking forward to the return to the academic year.

The realignment of the National Qualifications Framework (NQF) to the New Zealand Curriculum, NZC (2007) is now complete with all of the Achievement Standards finalised and registered. We can look forward to this year being a consolidation year. 2013 will also see the unit standards removed at the end of the year. A reminder that 2013 is also the International year of Statistics.

We hope you found the national PLD delivered in 2012 valuable and we have an exciting programme to deliver this year to consolidate the realignment process. Please do not hesitate to make contact. We would like to be available to address local needs wherever possible.

## National workshops: 'Getting Connected'

Every school will have access to these national workshops in terms 1 and 2. In all workshops, consideration will be given to raising the achievement of priority students – Maori, Pasifika and students with special education needs. See dates on final page of this newsletter.

### Workshop 1 content (weeks 8-12, term 1)

- Revisiting NCEA Level 1 and 2: tasks/resources/pedagogy
- Using data to inform teaching and learning (ako)
- Supporting a Teaching as Inquiry model
- Pathways
- Progressions – preparing junior students (Y9 and 10) for success in NCEA L1, 2 and 3 in statistics/probability

### Workshop 2 content (weeks 6-10, term 2)

- Revisiting NCEA Level 3 – tasks/resources/pedagogy
- External examination preparation – subject specific literacy issues
- Writing and editing assessment tasks
- Progressions – preparing junior students (Y9 and 10) for success in NCEA L1, 2 and 3 in number/algebra – measurement/geometry

### 'Getting Connected' - national workshop dates/details

At the workshops you will have the opportunity to discuss current issues and trends. These national workshops are free as they are funded by the Ministry of Education through the Secondary Student Achievement PLD provision. Workshop dates are provided on the final page of this newsletter. Regional facilitators will advise the venues, times and enrolment details soon.

## National contact details

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### Otago, Southland

Appointment pending. In the interim, contact Derek Smith (details above).

## Clusters/workshops

These will be run locally and, as well as responding to local issues, will include the following focus areas:

1. Numeracy
2. Gathering evidence for portfolios
3. Software for statistics
4. Course planning
5. Subject specific literacy in junior classes

Your regional facilitator will be in touch with more details.

## Census at School website

CensusAtSchool New Zealand should be your first port of call for information and support for your teaching of statistics:

<http://new.censusatschool.org.nz/>  
<http://new.censusatschool.org.nz/explore/>  
<http://new.censusatschool.org.nz/resources/>

## TKI RSS feeds

A reminder for the updates from TKI via RSS feeds or adding to your favourites bar:

<http://seniorsecondary.tki.org.nz/Mathematics-and-statistics>

## NZAMT writing camp

The annual writing camp was held at St Peter's College in January 2013. More than 30 teachers from around New Zealand gave up a week of their holiday time to write tasks at all three levels. Writing an assessment task is not an easy job and our thanks go to all who participated. Teachers can expect to see 2+ new tasks for all of the internal achievement standards. Also, a number of the level 1 and 2 tasks have been revised to bring them in-line with the standard specifications. A reminder to HODs to renew subscription for your schools membership for 2013 to access these tasks.

See: <http://www.nzamt.org.nz/how-to-become-a-member>

## NZQA Moderator's newsletter

December 2012

<http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/mathematics/moderator-s-newsletter/december-2012/>

## External and Internal NCEA L1, 2 and 3 Exemplars

Source:

<http://www.nzqa.govt.nz/ncea/assessment/search.do?query=Mathematics&view=all&level=01>  
<http://www.nzqa.govt.nz/ncea/assessment/search.do?query=Mathematics&view=all&level=02>  
<http://www.nzqa.govt.nz/ncea/assessment/search.do?query=Mathematics&view=all&level=03>

## Farewell to Noel Johnson

Noel, Te Tapuae o Rehua Mathematics Facilitator for the Southland Region, retired from the role in December 2012. Noel spent his time at King's College, Dunedin as a teacher, HOD, dean, rugby coach and all the other things for which teachers put their hands up, before joining School Support Services and teacher education lecturing at Otago University in 2005. Noel is keen to keep supporting extension programmes in mathematics for Dunedin students but hopes to get more involved with conservation work. Noel is a keen trumper and at the time of writing this newsletter he was in Stewart Island on a 7-day tramp. The wry humour and views Noel brought to any discussion were appreciated and often caused a firm settling of the matter.

All the best, Noel - we are sure you will be welcome in schools and certainly in our meetings should you decide to visit. Your effort and enthusiasm, reality, core business approach and focus on what happens in the classroom were appreciated by all.

## Egyptian fractions

An Egyptian fraction is the sum of distinct unit fractions, such as

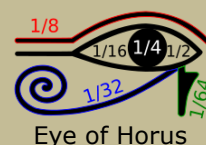
$\frac{1}{2} = \frac{1}{3} + \frac{1}{6}$

That is, each fraction in the expression has a numerator equal to 1 and a denominator that is a positive integer, and all the denominators differ from each other.

Examples:

$\frac{1}{2} = \frac{1}{3} + \frac{1}{6}$  and  $\frac{1}{2} = \frac{1}{4} + \frac{1}{4}$

See if you can write the Egyptian fractions for  $\frac{1}{n}$ , for n



Eye of Horus

Source:

[http://en.wikipedia.org/wiki/Eye\\_of\\_Horus](http://en.wikipedia.org/wiki/Eye_of_Horus)

## NZQA's Moderation Best Practice Workshops

The Moderation Best Practice Workshops are delivered by NZQA National Assessment Moderators, Assessment and Moderation Facilitators and National Moderators for teachers in specific senior secondary school subjects. They aim to:

- **Clarify** your understanding of grade boundaries for internally assessed standards.
- **Work** with supplied assessment materials including samples of student work at all levels.
- **Engage** in professional discussion with colleagues and the National Moderator.

There is a charge for these Best Practice Workshops. For dates, venues and information on the **Numeracy** and the **Mathematics and Statistics** Best Practice Workshops, visit the NZQA website at:  
<http://www.nzqa.govt.nz/about-us/events/best-practice-workshops/>

## The International Year of Statistics



The International Year of Statistics (Statistics2013) is a worldwide celebration and recognition of the contributions of statistical science. Through the combined energies of organizations worldwide, Statistics2013 will promote the importance of statistics to the broader scientific community, business and government data users, the media, policy makers, employers, students, and the general public.

The goals of Statistics2013 include:

- Increasing public awareness of the power and impact of Statistics on all aspects of society.
- Nurturing Statistics as a profession, especially among young people.
- Promoting creativity and development in the sciences of Probability and Statistics.

For more information:

<http://statistics2013.org/>  
<http://statistics2013.org/videocontest.cfm>  
<http://statistics2013.org/newsletter.cfm>

## NZAMT13 conference

Venue: Wellington Girls College.

From Tuesday 1 October to Friday 4 October 2013. Registrations and expressions of workshop presentations open in February.

<http://nzamt13.org.nz/index.php>

## Teaching and learning guides

<http://seniorsecondary.tki.org.nz/Mathematics-and-statistics>

Last update 27<sup>th</sup> September 2012.

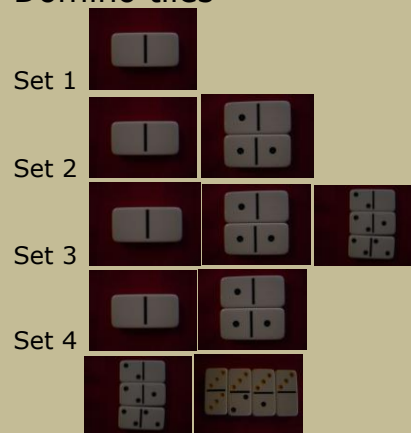
## Youth Guarantee

How well does your school compare in terms of the Government's Youth Guarantee goal of having 85% of school leavers achieving NCEA L2 by 2016 and 98% by 2021? The current figure is around 74% which is where the 4/5 figure quoted by the Minister recently came from.

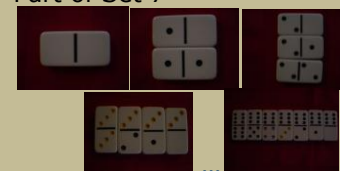
Sensible pathways leading to meaningful employment and career choice are vital. For more info:

<http://youthguarantee.net.nz/vocational-pathways/education-providers/>

## Domino tiles



Part of Set 7



Part of set 16 ...



Complete the following table.

Set number	Total number of dominoes per set	Total number of dots per set
1		
2		
3		
4		
5		
6		
...		
n		

## nzmaths learning community forums

These forums are still active and we encourage you to continue to post questions so that the mathematics community can continue to be well informed. Registration for new participants via:

<http://nzmaths.co.nz/user>

All seven forums can be accessed via: <http://nzmaths.co.nz/plc>

## Conditions of assessment links

### Internal assessment

Level 1 <http://ncea.tki.org.nz/Resources-for-aligned-standards/Mathematics-and-statistics/Level-1-Mathematics-and-statistics>

Level 2 <http://ncea.tki.org.nz/Resources-for-aligned-standards/Mathematics-and-statistics/Level-2-Mathematics-and-statistics>

Level 3 <http://ncea.tki.org.nz/Resources-for-aligned-standards/Mathematics-and-statistics/Level-3-Mathematics-and-statistics>

### External assessment

Level 1

<http://www.nzqa.govt.nz/ncea/assessment/search.do?query=Mathematics&view=achievements&level=01>

Level 2

<http://www.nzqa.govt.nz/ncea/assessment/search.do?query=Mathematics&view=achievements&level=012>

Level 3

<http://www.nzqa.govt.nz/ncea/assessment/search.do?query=Mathematics&view=achievements&level=03>

## University Entrance literacy requirement

From 2014, new requirements apply for University Entrance. Students must meet a new literacy requirement to enter into university-level programmes from 2015. (See [Secqual 2012/026](#) for further details). Students must now achieve 10 credits in literacy instead of 8, and these credits can be gained through identified achievement standards from across the curriculum. The literacy requirement for the new University Entrance from 2014 is 10 credits at NCEA Level 2 or above made up of 5 credits in reading and 5 credits in writing. This link to the [identified standards](#) lists the NCEA Level 2 and 3 achievement standards that can contribute to the new University Entrance literacy requirement. Note that the change occurs *from* 2014. Students in Year 13 this year, or those intending to enter university in 2014, are not affected by the changes – they need to meet the current requirements. Universities will accept University Entrance once awarded, regardless of the year that students begin tertiary study. This applies to students who gain University Entrance in 2013 (meeting all requirements) and do not immediately proceed to tertiary study in 2014. Students who are in Year 12 this year (who intend to enter university in 2015) will work towards meeting the new requirement of 10 literacy credits.

## University Entrance 2013 requirements

University Entrance (UE) is the minimum requirement to go to a New Zealand university. To qualify you will need:

Approved subjects - 42 credits at **Level 3 or higher**, made up of:

14 credits in one [approved subject](#)

14 credits in another [approved subject](#)

14 credits from one or two additional domains or approved subjects

Literacy requirements for this year (changes next year) - 8 credits in [English or te reo Maori](#) at **Level 2 or higher**, made up of:

4 credits in reading

4 credits in writing

Numeracy requirements - 14 credits in Numeracy at **Level 1 or higher**, made up of credits in Mathematics or Statistics and Probability or Pangarau or unit standards 26623, 26626, 26627.

## Online resources...

### Secondary literacy online

These pages will help secondary teachers gain an understanding of the literacy demands within subject areas and required by the curriculum; they will also support teachers to develop teaching and learning programmes based on the literacy needs of their learners.

<http://literacyonline.tki.org.nz/Literacy-Online/Secondary-Literacy>

### ESOL online

A site to help all primary and secondary teachers respond to the needs of their English language learners. Features online resources for ESOL specialists, primary, and secondary teachers.

<http://esolonline.tki.org.nz/>

### Leading from the Middle

A Ministry publication. It describes the qualities, practices and activities middle and senior leaders need to lead in ways that enhance learner outcomes. You can read this [online](#).



### ERO report links

Report on Teaching as Inquiry- Responding to Learners

<http://www.ero.govt.nz/National-Reports/Teaching-as-Inquiry-Responding-to-Learners-Blue-2012>





## Getting those extra NCEA credits

A number of school leavers are preparing for tertiary study. Traditionally, this has been the time where departments are approached to find extra credits to enable students to enter a course. With the new assessment matrix, it will no longer be possible for students to gain last minute credits. The old unit standards at NCEA level 2 have expired and 2013 is the last year that they will be offered at levels 1 and 3. Teachers will now need to educate students and school management about the options available to students who find themselves short of the credits they need.

Students starting university this year need 14 mathematics credits, 10 of which may be from the numeracy unit standards. It may be possible in February to:

- Offer students a reassessment in a standard they have not previously been reassessed in.
- Offer students a standard which is not on the exclusion list for a standard they have already achieved.
- Gain 10 numeracy credits based on accumulated evidence from previous months or years of mathematical learning.

Other options are described at:

<http://blog.careers.govt.nz/2013/01/09/not-enough-ncea-credits-to-get-into-your-course-dont-panic/>

## NZQA moderation of tasks not on the school's moderation list

### Optional Teacher Selected Evidence (OTSE)

This process continues to be an opportunity for teachers to get feedback on aspects of internal assessment. It could be particularly useful for new standards that have not yet been selected for moderation. The scope of the OTSE has been broadened and now allows the moderator to respond to specific questions about interpreting standards, judging student work or task design. OTSE can be used at any time:

- For any curriculum-related, internal achievement standard.
- To pose questions to moderators about the interpretation of standards.
- To support internal moderation.

The purpose of OTSE is not to verify teacher marking or to pre-moderate assessment tasks. It is to help clarify standards. Teachers can ask specific questions of the moderator about interpreting standards, judging student work and also ask questions about task design. This is being made available to help improve assessment practice and to increase teacher confidence when making assessment decisions. For further information about sending in an OTSE please visit:

<http://www.nzqa.govt.nz/providers-partners/assessment-and-moderation/managing-national-assessment-in-schools/managing-internal-assessment/external-moderation/teacher-selected-evidence/>

## Dates for our free national workshops for middle leaders: 'Getting connected'

More details about venues and times will be provided soon via email, but here are the initial details about the free 'Getting Connected' national workshops for Mathematics and Statistics middle leaders.

18 March	Cromwell	19 March	Invercargill
21 March	Napier	22 March	Gisborne
26 March	Waikato	27 March	Dunedin
28 March	Whangarei	9 April	Central BOP
9 April	New Plymouth	9 April	West Coast
10 April	Western BOP	10 April	Palmerston North
11 April	Timaru	12 April	Masterton
12 April	Christchurch	15 April	Auckland
16 April	Wellington	16 April	Blenheim
16 April	Auckland	17 April	Wellington
17 April	Nelson		

### Teachers as learners

Teachers as learners: Improving outcomes for Māori and Pasifika students through inquiry  
<http://nzcurriculum.tki.org.nz/Curriculum-stories/Case-studies/Teachers-as-learners-Inquiry>

### NCEA Level 1 literacy requirements

Minimum of 10 credits through either:  
Specified assessment standards - [specified achievement standards](#) available through a range of subjects and [Education for Academic Purposes unit standards](#) (minimum total of 10 credits), or  
Unit standards - package of three [literacy unit standards](#) (total of 10 credits - **all** three required).

### NCEA Level 1 numeracy requirements

Minimum of 10 credits through either:  
Achievement standards - [Specified achievement standards](#) available through a range of subjects - (minimum total of 10 credits), or  
Unit standards - package of three [numeracy unit standards](#) (total of 10 credits - **all** three required).

### Teaching and Learning Guides

New material has been published on the Teaching and Learning Guides pages. To view this material, click on the URL:

<http://seniorsecondary.tki.org.nz/Matematics-and-statistics/Learning-programme-design/Year-12-programme-design/Level-7-mathematics-and-statistics-example/Activity-Fractals>

### National newsletters

National newsletters like this one are developed for every learning area by national co-ordinators from The University of Auckland and Te Tapuae o Rehua consortium (University of Canterbury, University of Otago and Te Runanga o Ngāi Tahu). To download the latest newsletter and for more information about Ministry-funded professional development for secondary middle leaders, visit this page on TKI:

<http://nzcurriculum.tki.org.nz/Secondary-middle-leaders/Professional-learning-and-development>