

This newsletter and the Secondary Student Achievement Professional Learning and Development initiative is funded by the Ministry of Education. The providers are The University of Auckland and Te Tapuae o Rehua consortium.

# National Newsletter: Mathematics and Statistics

Information and resources for middle leaders in secondary schools | Term 1 2014

## Whakatauki

Te manu ka kai i te miro, nōna te ngahere.  
Te manu ka kai i te mātauranga, nōna te ao.  
The bird that partakes of the berry, his is the forest.  
The bird that partakes of knowledge, his is the world.

## Welcome

We hope that you've had a relaxing break over the summer. This newsletter is packed with links and information for the mathematics and statistics teaching community. Please circulate around the department/faculty.

## National workshop programme - term 2

The target audience for this year's free national workshop programme is middle leaders/teachers in charge of mathematics and statistics.

Overview:

- Inquiry process and next steps to linking to appraisal and RTCs.
- Junior programmes and back mapping from NCEA L1, 2 and 3.
- National standards, contributing schools and transitioning students.
- Differentiation in the classroom.
- Using data and tracking priority learners, linking to NAG 2A.
- Literacy within mathematics and statistics.
- NCEA L1, 2, 3 moderation/task/clarifications.
- Youth Guarantee, Vocational Pathways and financial literacy - cross-curricular tasks.

Whangarei 29 May	North Shore 21 May	Auckland 22 May
Sth Auckland 20 May	Hamilton 13 May	Rotorua 14 May
Napier 15 May	N Plymouth 13 May	Palmerston Nth 15 May
Masterton 12 May	Wellington 13 May	Nelson 15 May
Christchurch 14 May	Dunedin 27 May	Invercargill 29 May

## iNZight and GeoGebra updates

A new version of iNZight is now available along with a number of new features and devices which it can be used on. It is essential that teachers and students use this latest version due to new features and corrections:  
<https://www.stat.auckland.ac.nz/~wild/iNZight/dlw.html>

GeoGebra 4.4 was released in December 2013. The main change is the CAS view is much better and faster: [geogebra-download](#)

## Youth Guarantee and Vocational Pathways

TKI internal achievement standards resources include NZQA quality assured assessment resources to support internally assessed Level 1 and 2 registered achievement standards for the Vocational Pathways:

[Level-1-Mathematics-and-statistics](#)

[Level-2-Mathematics-and-statistics](#)

## Contact details

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## The 2014 PLD landscape

### Secondary Student Achievement professional development

Secondary Student Achievement is the professional development contract for secondary schools funded by the Ministry of Education. The Government goal is that 85% of all 18-year-olds will have achieved NCEA Level 2 or an equivalent qualification in 2017. To support this, the focus for this PLD in 2014 will be to work with secondary senior leaders, middle leaders and teachers to help raise achievement for all students, and particularly for priority learners, Māori students, Pasifika students and those with special education needs.

### Numeracy and literacy progressions

<http://www.literacyandnumeracyforadults.com/resources/354809>

<http://www.literacyandnumeracyforadults.com/resources/354913>

A reminder that the numeracy and literacy unit standards are linked to the adult progressions, Koru level 5: See this [link](#) for more information.

### Literacy Online and annotated student work

This annotated exemplar on the level 2 achievement standard AS91265 'Conduct an experiment to investigate a situation using statistical methods' helps teachers to support the literacy and language learning of students in mathematics and statistics. Visit:

[Literacy-Online-Annotated-exemplar-Mathematics-and-Statistics](#)

### TKI, NZQA, nzmaths, C@S, Statistics NZ, NZAMT

Register for these updates via RSS feeds or add to your favourites:

TKI <a href="http://www.tki.org">www.tki.org</a>	NZQA <a href="http://www.nzqa.govt.nz">www.nzqa.govt.nz</a>
NZAMT <a href="http://www.nzamt.org">www.nzamt.org</a>	nzmaths <a href="http://www.nzmaths.co.nz">www.nzmaths.co.nz</a>
C@S <a href="http://new.censusatschool.org.nz/">http://new.censusatschool.org.nz/</a>	Statistics NZ <a href="#">Census 2013</a>

Note that the Conditions of Assessment were updated for all levels in December. There are new rules for calculators in external examinations from this year. Instead of a list of those which are banned, there is now a list of those that are allowed: [approved-calculators-list-for-external-assessments-in-2014](#)

There are changes to Māori medium NCEA assessment in all subjects including mathematics and statistics/pāngarau. For news about this: <http://www.nzqa.govt.nz/about-us/news/revision-of-general-education-maori-subfield-2/>

The new standards are at:

<http://www.nzqa.govt.nz/about-us/news/revision-of-general-education-maori-subfield-2/>

### Literacy in mathematics: free national workshops

Target audience: middle leaders, literacy leaders in schools.

#### Overview:

- Student demands are recognised around printed text, but also there are demands in reading graphs, tables, charts, symbols – a broader definition of 'text'.
- Moving away from 'getting the answer' – students need to locate the mathematics within a question.
- Reading for meaning, decoding, and mathematising the problem.
- A range of contexts may be used in problem solving – students need the skills to identify where the mathematics problem is.

There will be one workshop in each of the Northern, Central North, Central South and Southern regions. There will be a reporting back session in term 4 to follow up on schools involved in this PLD programme. More information on this series of workshops is to follow later in term 1.

## Farewells

Karen Barks and Marion Steel departed the mathematics and statistics facilitator team to return to their respective positions at Nayland College and Epsom Girls' Grammar School at the end of 2013.

With their deep thinking and creative resourcefulness, they energised teacher workshops throughout the country, supported departments and faculties in their work with in-depth schools, and supported local mathematics associations.

Thank you Karen for your time, and the enthusiastic purpose with which you approached any task and for being a very natural and positive person with whom to work.

Marion's skill and enthusiasm has enabled successful implementation of the realigned standards, providing valuable expertise in NCEA statistics.

We wish her well and envy her students and the teachers to whom she is returning.

Thank you both for the time you have given to the national community of mathematics and statistics teachers.

Mo te katoa nga mahi.  
All that is done is for the benefit of all.

## Welcomes

The mathematics and statistics facilitator team welcomes Robyn Headifen (from Rangitoto College) who joins the Team Solutions facilitation team based at the University of Auckland.

A warm welcome also to Derek Glover (from NZQA), who will join the Te Tapuae o Rehua team based in Christchurch.

## CensusAtSchool survey

How important is the survival of CensusAtSchool for your statistics teaching? With budgetary tightening and cutbacks in progress at CensusAtSchool's major funders, Statistics New Zealand and the Ministry of Education, the future of the CensusAtSchool site and the teaching and assessment resources it provides is not assured. Please complete this survey: <http://new.censusatschool.org.nz/future/>

## BOPMA numeracy booklet

This resource is a collection of 120 pages of activities that can be used to gain assessment evidence for the numeracy unit standards 26623, 26626 and 26627. Each activity has a mark schedule and guide. The activities are sectioned into number, measurement and statistics. Many have been used, moderated and altered but none are quality assured.

This resource is available free from the [www.bopma.co.nz](http://www.bopma.co.nz) website to all members and affiliated members. To become a member, contact the secretary, BOPMA [mcfarlanecj@xtra.co.nz](mailto:mcfarlanecj@xtra.co.nz)

Any school can become an affiliated member for a small fee. The resource is available on the understanding that it is only used within the school which becomes affiliated and only for the year in which it was purchased.

## NZQA's Best Practice workshops for 2014

Here is the link with information NZQA best practice workshops: [best-practice-workshops](#)

Subject / Location	WHANGAREI	AUCKLAND	AUCKLAND	MANUKAU
Mathematics	22-May	6-Mar	18-Sep	28-Aug
Statistics	23-May	7-Mar	19-Sep	29-Aug
Subject / Location	HAMILTON	PALMERSTON NORTH	WELLINGTON	NELSON
Mathematics	19-Jun	9-Apr	14-Aug	7-Mar
Statistics	20-Jun	10-Apr	15-Aug	8-Mar
Subject / Location	CHRISTCHURCH	DUNEDIN		
Mathematics	18-Sep	16-Oct		
Statistics	19-Sep	17-Oct		

## Mathematics and statistics facilitators' website

Recent additions include a list of Level 3 Standards and the Clarifications. [Level 3 Achievement Standards with Clarifications.](#)

The fifteen L3 Achievement Standards 'big picture' revised by the facilitators: [Level 3 'Big picture'](#)

## Youth Guarantee and Vocational Pathways

The profile builder on this Ministry website allows a student to enter achievement standards in all subject areas to be recorded and shows how these relate to the six broad employment sectors. Information about jobs within sectors can then be explored.

Teachers can also use this tool to check the focus of mathematics courses. There is an expectation that courses suit student aspirations. See: [/start-your-journey](#) and [ero - Report](#)

NZQA quality assured resources support internally assessed Level 1 and 2 registered achievement standards for the Vocational Pathways: [Level-1-Mathematics-and-statistics](#) and [Level-2-Mathematics-and-statistics](#)

## Futureintech

Online booking an Ambassador  
[http://www.futureintech.org.nz/request\\_ambassador.cfm](http://www.futureintech.org.nz/request_ambassador.cfm)  
For further information please contact Susan Weekes, Futureintech Facilitator [www.futureintech.org.nz](http://www.futureintech.org.nz)

## Resources and weblinks

### 2014 PLD links

[Secondary-middle-leaders/Professional-learning-and-development](#)

[Secondary-middle-leaders/News](#)

[System-of-support-incl.-PLD](#)

[E-newsletters](#)

### NZAMT executive: request

Any teachers who have received moderation reports on an unaltered NZAMT task which is deemed "not at the standard" or has any issues attached to it are asked to please send a scanned copy of the moderation report to:

[nzamtresources@gmail.com](mailto:nzamtresources@gmail.com)

This will enable the resource coordinators to adjust the task on the website as soon as possible.

### Poem - The Key

The key to your freedom  
Is within your grasp  
In spite of circumstances  
Anew and of past

The key is the strength  
And courage within  
To forget past failures  
And a new day begin

The key is trusting that  
You will one day achieve  
Success and freedom  
But you must truly believe

The key is believing  
That deep inner voice  
That says "Yes you can  
You do have a choice."

So the next time you feel  
You don't have a chance  
Remember, you alone hold  
The key to your happiness

For the key that you have  
Can never be stolen  
Lost or misplaced and  
It can never be broken.

*Camille Rose Castillo, 2009*

## NZAMT

There is a new format for membership as indicated by the executive at the NZAMT13 conference. School registration includes individual resources. To see the resources available to registered schools, link [here](#)

To gain access to these resources you must be have registered with NZAMT:

<a href="#">2013 NZAMT Conference Resources</a>	<a href="#">Statistics 2013 Photo Contest</a>
<a href="#">2013 Beven Werry Speaker - Dillon Mayhew</a>	<a href="#">Facebook Page for NZAMT</a>

## From the facilitators' notebook

Secondary Student Achievement facilitators around the country have been working in-depth in allocated schools. The focus has been to work with middle leaders on strategies to improve student achievement, especially at NCEA Level 1 and 2 and especially for priority learners. Facilitators have observed:

- Increased tracking of students to monitor progress.
- Strategies established to accelerate learning of students who are working well below the expected curriculum level.
- Inquiry based teaching with an emphasis on 'knowing the learner' to build relationships.
- Acknowledgement that subject specific literacy is an essential focus for student success.
- Increased awareness that improving NCEA achievement starts at Year 9 and before.
- Context-based learning and teaching is essential at every year level.
- Teachers are realising the need to understand strand progressions through curriculum levels 2 to 6.

## Mathematics in the media

<http://www.math.harvard.edu/~knill/mathmovies/>

A collection of movie clips which feature mathematics. The website is in HTML5 video and should be accessible by all devices.

Others...  $\sqrt{2}$  <http://www.youtube.com/watch?v=5sKah3pJnHI>

Mathematics in the Simpsons:

[youtube- Simpsons 1](#) [youtube- Simpsons 2](#)

Mathematics in Numb3rs [numb3rs](#)

RadioNZ on mathematics [mathematics recordings search](#)

## NCEA links

<b>Mathematics and Statistics</b> <a href="#">Mathematics level 1</a> <a href="#">Mathematics level 2</a> <a href="#">Mathematics level 3</a>	<b>Past Examination papers</b> <a href="#">Mathematics level 1</a> <a href="#">Mathematics level 2</a> <a href="#">Mathematics level 3</a>
<b>Assessment specification 2014</b> <a href="#">Mathematics level 1</a> <a href="#">Mathematics level 2</a> <a href="#">Mathematics level 3</a>	<b>Assessment Schedules &amp; Judgement Statements</b> <a href="#">Mathematics level 1</a> <a href="#">Mathematics level 2</a> <a href="#">Mathematics level 3</a>
<b>Assessment reports</b> <a href="#">Mathematics level 1</a> <a href="#">Mathematics level 2</a> <a href="#">Mathematics level 3</a>	<b>Numeracy</b> <a href="#">Numeracy Moderator Newsletter</a> <a href="#">Clarifications on Literacy/Numeracy</a>

## Where are we in the world?

[where-in-the-world-you-can-find-the-best-schools](#)

[the guardian pisa-results-country-best-reading-maths-science](#)

The link below gives results for each country involved in PISA.

[spreadsheet of countries PISA](#)

## Paper folding activity

Find the centre of the circle.



Create the equilateral triangle by folding so that a point on the circumference touches the centre of the circle. Repeat twice more.



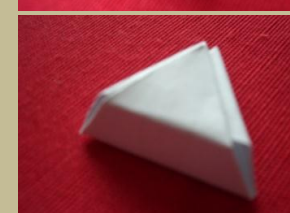
Fold a vertex of the triangle to the midpoint of the opposite edge. Repeat twice more.



Fold a vertex of the triangle to the centre of the circle. Repeat twice more.



Create the tetrahedron and truncated tetrahedron.



Q: What is the volume of the truncated tetrahedron?