

Secondary Student Achievement PLD

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National Newsletter: Mathematics and Statistics

Information and resources for middle leaders in secondary schools | Term 2 2016

Whakatauki

Me whāngai i kā uri whakatipu ki te mātauranga.

Provide knowledge as substance to forthcoming generations.

Welcome back to term 2. Eleven weeks, or a third of the teaching year, has been completed.

- Do your student credits reflect this? Some schools are using a 4x4 strategy (a minimum of 4 credits per subject per term).
- What strategies do you have in place for those students who are not achieving?
- Is the programme you have planned for your students still appropriate? Are some adjustments needed?

SSA national workshops 2016

Theme: "Making Connections" – d/dx (Learning)

In response to your feedback to the survey last year, this year's SSA national workshops will include:

- Updating on all matters "Mathematical" - What do we need to know?
- Financial capability – alternate courses at NCEA level 2. A look at the significant resource base available.
- Tracking students – how do you respond to data to improve student achievement from year 9 to year 13?
- Using one assessment activity and one context to assess in two different standards in mathematics at NCEA level 1.
- Across learning area connections.
- Building awareness and opportunities with technology.

All workshops will run 9.00am - 3.00pm. National workshops are free but registration is essential. Further details at:

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

Dates and venues for the national workshops

27 May	Whangarei	18 May	Paremata
10 May	Hamilton	23 May	Wellington Central
12 May	Rotorua	9 May	Greymouth/Westport
19 May	Whakatane	11 May	Nelson
17 May	Tauranga	14 June	North Canterbury
24 May	Hastings/Napier	16 June	Christchurch
26 May	Gisborne	5 May	Otago North/Timaru
9 May	New Plymouth	12 May	Dunedin
11 May	Palmerston North	17 May	Cromwell
27 May	Whangarei	19 May	Invercargill
16 May	Masterton		

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Updates from MathsNZ and NZGrapher

MathsNZ Secure

This is a secure place for teachers to be able to share internals and other resources. We all create great resources every day, but so often we keep these to ourselves as there is no easy way to share them in a secure way. Now that has all changed. MathsNZ Secure makes it easy to share resources with other teachers from around New Zealand. You can get started now. Check it out at secure.mathsnz.com

New NZGrapher features

This now has the ability to filter numerical data to only leave points between certain values and provides another option to create a linear function of a variable. This means you can easily divide or multiply by 1000 (or other numbers) to make the numbers a lot more viewable or create any linear function on the variable. This is in addition to the creating new variable by adding, subtracting, multiplying or dividing two variables. These are all under 'Sample and More' in the data area. There is also a new video giving an overview of NZGrapher. Any feedback on the new format of video is appreciated.

http://students.mathsnz.com/nzgrapher/nzgrapher_a_1.html

NZGrapher can now set custom min/max values for Dot Plots (and Box and Whisker). Thanks to the several people who suggested this. Under "More Options" down the right hand corner. NZGrapher can now plot hourly datasets using the format 2001H01. Check out the example

at: <http://www.jake4maths.com/grapher/?folder=datasets&dataset=TS+-+Hourly+Example.csv>

MathsNZ Students

Now with 3.9 Bivariate Data and 3.8 Time Series, students can work through the online lessons, viewing and commenting on the graphs online and then get what they have done emailed directly to your inbox. Check it out at: students.mathsnz.com

Updates from Census At School and iNZight (Lite)

The Census At School site is undergoing a transformation. Rachel Cunliffe has been prototyping a new design by working first on the page for AS 3.8 Time Series <http://new.censusatschool.org.nz/resources/3-8/>

They are indexing materials using a new set of categories: Teacher preparation, Classroom activities, Datasets, Tools, Achievement Standard. When you expand a category you will see how they have used images to make everything look more vibrant. There is another new feature under the

Datasets category. Look for the icons  (download) and  (visualise).

When you click the latter, the dataset opens up in the times series module of iNZight Lite. This should be excellent for enabling teachers to very quickly inspect a series, or a set of related series, to see if they want to use it. Let them know how you like the new design and provide any suggestions for improvements to censusatschoolnz@gmail.com

Another example of harnessing the joint power of the Census At School data tools and iNZight Lite is found with Random Sampler and Data Viewer. As soon as you have selected your sample you are offered the additional option of opening up the data in the Visualise module of iNZight Lite for analysis.

Tabulator: See <http://tabulator.docker.stat.auckland.ac.nz/> Tabulator is a successor to *Table Maker*, written by Chris Park. It is intuitive but there is documentation under the Help button. It needs a few finishing touches before it is hooked to the main site but it is already a good tool. In addition to producing tables of counts it generates plots of the tabular data (click the Plot tab at the top right).

iNZight: There is major work underway on iNZight with new capabilities. It will probably be available mid-year.

NZTA education portal (Cont. from page 4). The focus here is on choices and positive attitudes in the advertising now as opposed to the scare tactics of past advertising.

There are clear, detailed links to the Key Competencies (NZC) in the unit plans.

Use their internal search engine: 'Driver Distractions' e.g. https://education.nzta.govt.nz/search?queries_keywords_query=Driver+distractions&search_page_23893_submit_button=Search&search_page_23893_sort_by=0&search_page_23893_sort_directi on=1

Māori alphabet blocks

The 24 wooden blocks feature the Māori alphabet (with macronised letters) alongside numbers, math symbols, *poupou* figures and *tukutuku* patterns. The figures can be stacked atop one another and when arranged side by side, the imagery resembles the arrangement of *pou* and *tukutuku* seen in *whare* (Māori meeting-houses).



<http://www.madebyjohnson.co.nz/maorialphabetblocks/>

Financial management unit standards

Resources available include student and assessor guidelines:

<http://www.nzqa.govt.nz/providers-partners/assessment-and-moderation/assessment-of-standards/assessment-support-material/personal-financial-management/>

Matrix for Personal Financial Management NCEA Levels 1, 2 and 3:

<http://www.nzqa.govt.nz/assets/qualifications-and-standards/Standards/PFM/PFM-Matrix-2015-A4.pdf>

Also supporting these Unit Standards is Young Enterprise Trust. Visit:

<http://youngenterprise.org.nz/teaching-support/> and
<http://youngenterprise.org.nz/find-resources/>

Use their internal search engine to find resources linked to games or specific standards.

Group assessing parts of the Level 1, 2 or 3 achievement statistics standards

Please make sure that you understand the methods in the achievement standard. Recent activity on the nzmaths forums about students being absent for part of the group assessment part of the task:

(<http://nzmaths.co.nz/secondary-professional-learning-communities>)

AS91036: *Using the statistical enquiry cycle* involves using each component of the statistical enquiry cycle to investigate bivariate numerical data.

* gathering data

AS91263: *Design a questionnaire* involves showing evidence of using each component of the questionnaire design process.

* checking the survey questions by:

- carrying out a desk review,
- conducting a pilot survey(s) including collecting and recording data.

AS91265: *Conduct an experiment to investigate a situation using statistical methods* involves showing evidence of using each component of the investigation process.

* conducting the experiment and collecting data

AS91583: *Conduct an experiment to investigate a situation using experimental design principles* involves showing evidence of using each component of the investigation process.

* conducting the experiment:

- collecting data,
- recording any issues that arise.

Archived SSA national newsletters

These can be found at: <http://nzcurriculum.tki.org.nz/Secondary-middle-leaders/Professional-learning-and-development/E-newsletters>

Click on the years to view current and archived newsletters:

[2016](#) [2015](#) [2014](#) [2013](#) [2012](#)

Educational Review Office national report

Raising student achievement through targeted actions

<http://www.ero.govt.nz/National-Reports/Raising-student-achievement-through-targeted-actions-December-2015>



The Pond

<http://www.pond.co.nz/>

<http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/understanding-ncea/re/>

DigiStore

<http://www.nzmaths.co.nz/digital-learning-objects>

STATCHAT

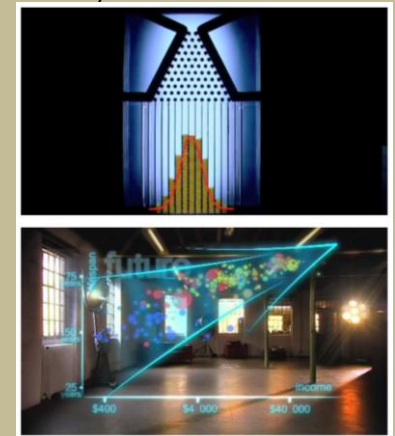
<http://www.statschat.org.nz>

Articles for Statistical Reports

<http://sumo.ly/dxMd>

Gapminder

The Joy of Statistics!



Hans Rosling believes there is nothing boring about stats. This 60-minute video looks at the history and future of real life statistics.

Classroom activity on linear algebra from Ontario

This website 'Tap into teen minds' takes a light hearted look at a mathematics problem and links to school detentions. Which administrator should each student buy-out from?

<https://tapintoteenminds.com/3act-math/the-detention-buy-out/The-Detention-Buy-Out>

Video link: https://youtu.be/Gxk_xuOvVCg

nzmaths

- Content has been reorganised into three key collections – PLD material, teaching resources, and resources for students and whānau. This will make it easier for users to find what they need.
- Teachers will now log in to e-ako maths and e-ako Pāngarau using their nzmaths username and password.
- There is a one-time linking process required to join an e-ako account to your nzmaths account.
- Once teachers link their accounts, they will have access to a large amount of new PLD material, and also the option to create a class to track their students' progress in e-ako maths.
- There is also a live chat function on nzmaths specifically to support teachers in setting up their account and class in e-ako maths and e-ako Pāngarau.

NZCER

<http://www.nzcer.org.nz/news/lemma-maths-resources-launched>

The [LEMMA series of maths resources](#) is now available. LEMMA is a series of maths tasks for Years 9-13, designed to promote higher order thinking in maths. It was developed by a team led Dr Caroline Yoon from the University of Auckland mathematics department, with Professor Bill Barton who launched the resource. Dr Yoon worked on the resource as part of a Beeby fellowship, a partnership between NZCER and the New Zealand National Commission for UNESCO, which provides an opportunity for innovative research to be turned into resources to enhance learning.



Contextual knowledge for the internally assessed Statistics achievement standards

- It is important that students have access to appropriate contextual knowledge.
- At NZC level 6 students should be working with contexts that are familiar to them.
- At NZC level 7 students should be provided with relevant contextual knowledge about the situation under investigation.
- At NZC level 8 students should be sourcing relevant contextual knowledge about the situation under investigation from places such as the internet, the school or local library, newspapers and magazines.

See:

<http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/mathematics/moderator-s-newsletter/february-2016/>

PLD links

- [Latest news for middle leaders](#)
- [TKI PLD resources](#)
- [Other curriculum area national newsletters](#)
- [TKI Literacy Online: Literacy in Mathematics](#)
- [ERO Report: Supporting school improvement through effective teacher appraisal](#)

Useful web links

- [NZ Maths for Level 1-5 information](#)
- [NZAMT for teaching & assessment resources](#)
- [TKI for Level 6+ information](#)
- [Census at School NZ for statistics resources](#)
- [NZQA documents](#)

NZTA education portal

<https://education.nzta.govt.nz/>
Virtual field trips and tours
<https://education.nzta.govt.nz/field-trips>
Primary and Secondary resources
<https://education.nzta.govt.nz/resources>
Literacy and Numeracy
<https://education.nzta.govt.nz/resources/secondary/literacy-and-numeracy#>
Mathematics and Statistics
<https://education.nzta.govt.nz/resources/secondary/mathematics#>
Resources prepared for Y9, 10 and NCEA Level 1

These curriculum resources allow students to investigate data sets with road safety contexts. Prepared by Dr Sarah Howell (Curriculum Leader Te Ako o Te Kura Pounamu).

Activities:

- HOW FAR UNTIL IT STOPS - JUNIOR MATHS PPDAC INVESTIGATION
- CROSSING THE CENTRE LINE: TABLES AND GRAPHS
- DRIVEN TO DISTRACTION

(More information about the portal on page 2).