

Workshop 8

Thursday 5th October, 1155

Workshop summary

W8C	Using open questions to create open students	Marian Small (K)
W8D	Conceptualising Variation from the Mean: Evolving from 'Number of Steps' to the 'SAD' to the 'MAD' to the 'Standard Deviation'	Chris Franklin (K)
W8E	Leading from the Middle – How am I doing?	Robyn Headifen
W8F	Cooperative Learning: Getting your students talking mathematics.	Gillian Frankcom
W8H	A Better Future for students with Dyscalculia and other learning difficulties	Margi Leech
W8I	Flipped Learning in senior Maths - what to do in the classroom	Stephen McConnachie
W8J	Teacher Desmos	Subash Chandar K
W8K	The Perfect Modelling Tool for Teachers and Independent Learners - Workshop B (Hands-on Tutorial)	Volker Schroeter

W8C

Using open questions to create open students

Marian Small

Sometimes students are streamed for mathematics and sometimes not. But in any classroom, there is always a spread of student readiness for the mathematics we offer. For that reason alone, it is important to use more open-ended questions that aim at a broader audience. But there is an added bonus. Not only do open-ended questions help us differentiate, they also provide much richer and more multi-layered understanding of mathematics for all students, from the weakest to the strongest. Lots and lots of examples you can use immediately will be provided, as will strategies to create your own.

Recommended Audience: Year 1 – 6 Teachers, Year 7 – 8 Teachers, Year 9 – 10 Teachers

Marian Small, the former Dean of Education at the University of New Brunswick in Canada, writes and speaks about K-12 math around the world. Her focus is on teacher questioning to get at the important math, to include all students, and to focus on critical thinking and creativity.

W8D

Conceptualising Variation from the Mean: Evolving from 'Number of Steps' to the 'SAD' to the 'MAD' to the 'Standard Deviation'

Chris Franklin

Wouldn't it be wonderful if every student who graduated secondary school understands, "What it means to be two standard deviations away from the mean?" Our teaching experience demonstrates that students more often than not can't conceptualize what the standard deviation is measuring; instead, the students are too focused on getting the number, full stop! This workshop will share interactively how conceptual understanding of the standard deviation is being promoted across grade levels in the US.

Recommended Audience: Year 7 – 8 Teachers, Year 9 – 10 Teachers, Year 11 – 13 Teachers

Christine (Chris) Franklin is the Lothar Tresp Honoratus Honors Professor and Senior Lecturer Emeritus in Statistics at the University of Georgia and a Fellow of the American Statistical Association. She has been recognized with numerous teaching and advising awards at UGA. She is the co-author of an Introductory Statistics textbook with Alan Agresti and Bernhard Klingenberg, co-author of the textbook Statistics Reasoning in Sports with Josh Tabor and has published more than 50 journal articles and book chapters. Chris was the lead writer for the American Statistical Association Pre-K-12 Guidelines for the Assessment and Instruction in Statistics Education (GAISE) Framework. She chaired the writing team of the ASA Statistical Education of Teachers (SET) report.

W8E

Leading from the Middle – How am I doing?

Robyn Headifen

By identifying strengths and areas for development as a leader you can better plan for next steps to improve leadership practices that positively impact on both teachers and students in your department

During this workshop you will be introduced to a simple framework developed from 'Leading from the Middle' and other key documents. The framework will help you to evaluate your current practice as an instructional leader and plan some next steps.

Recommended Audience: Year 7 – 8 Teachers, Year 9 – 10 Teachers, Year 11 – 13 Teachers

Robyn is an Accredited Facilitator from The University of Auckland. She was previously the Auckland regional mathematics & statistics facilitator for the Secondary Student Achievement professional learning and development contract. The role involved working with middle leaders to improve outcomes for students with a particular focus on priority students.

W8F

Cooperative Learning: Getting your students talking mathematics.

Gillian Frankcom

If you want your students to talk to each other, to make conjectures and to take part in mathematical conversations, this is one pedagogy that might be able to deliver. First this workshop will give you opportunity to take part in problem-solving using this method - then talk to others about how to implement this in your classroom. Finally I shall suggest some readings you might find useful. Bring your laptop.

Recommended Audience: Year 1 – 6 Teachers, Year 7 – 8 Teachers, Year 9 – 10 Teachers, Year 11 – 13 Teachers

Gillian is an Initial Teacher Educator at Auckland University

W8H

A Better Future for students with Dyscalculia and other learning difficulties

Margi Leech

We as teachers do not often realise the impact of maths learning difficulties. This workshop will explore these learning difficulties including dyscalculia and provide a variety of ways of supporting these often 'bright' students in their learning and problem-solving towards a better future.

Recommended Audience: Year 1 – 6 Teachers, Year 7 – 8 Teachers, Year 9 – 10 Teachers, Year 11 – 13 Teachers

Margi Works for Numicon

W8I

Flipped Learning in senior Maths - what to do in the classroom

Stephen McConnachie

Flipped learning is not about replacing the teacher. It's about transforming the classroom - using face-to-face time for interaction, rich problem solving, discussion, for building relational and extended abstract thinking. What does this look in senior Mathematics? In this workshop we will look at the principles of flipped learning, and explore some activities and resources for transforming all that extra classroom time.

Recommended Audience: Year 9 – 10 Teachers, Year 11 – 13 Teachers

Stephen is the e-Learning Coordinator and a Mathematics teacher at Middleton Grange School in Christchurch, specialising in Calculus and Scholarship Calculus. He is the Vice-President of the Canterbury Mathematical Association, and is passionate about equipping teachers in the region to use e-learning effectively. He also loves drinking coffee and playing music.

W8J

Teacher Desmos
Subash Chandar K

What is Teacher Desmos? It is an online resource where Desmos in conjunction with teachers have created engaging tasks for students. In this session I will be sharing some of my experiences with using and creating custom tasks in Teacher Desmos. I shall start with the basics of how to create your own custom tasks in Teacher Desmos and aim to have a completed custom task created by you by the end of session.

Please bring a laptop or any tablet with an internet browser. Note: DESMOS App is different to Teacher Desmos.

Recommended Audience: Year 7 – 8 Teachers, Year 9 – 10 Teachers, Year 11 – 13 Teachers

Subash Chandar K is the curriculum leader of Mathematics and Statistics at Ormiston Senior College. He is the owner of the YouTube channel infinityplusone for which he was recognized with an Ernest Duncan Award in 2016. He is a regular contributor to the Auckland Mathematics Association events since 2014. He is in constant pursuit of engaging and challenging students at their levels with the use of innovative techniques.

W8K

The Perfect Modelling Tool for Teachers and Independent Learners - Workshop B (Hands-on Tutorial)

Volker Schroeter

GeoGebra is a powerful modelling tool for teachers. It enables teachers to model mathematical and statistical problems at all levels of the New Zealand Curriculum. GeoGebra is also suitable as a learning tool for students. It enables curious students to discover properties of mathematical models through interaction with the model.

GeoGebra DIY - A hands-on tutorial In this session participants will begin to develop their own teaching tools. Content and direction of this session will evolve from the interests, wishes and goals of those ready to give GeoGebra a go.

Participation is best described by "all hands on the keyboard". No prior knowledge required. Bring: a laptop with GeoGebra installed

This is the second workshop in a series of 3 workshops. Delegates are welcome to attend all 3 or individual workshops.

Recommended Audience: Year 7 – 8 Teachers, Year 9 – 10 Teachers, Year 11 – 13 Teachers

Volker Schroeter has 19 years of teaching experience in secondary and tertiary education in New Zealand. He has been using GeoGebra since 2010. Over the past seven years Volker has developed over 800 GeoGebra files, covering all Mathematics strands at all year levels. This year Volker is using GeoGebra for his inquiry into independent learning.

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