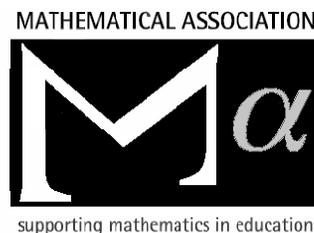


# The Mathematical Association Secondary Education Mathematics Conference

**Saturday 29<sup>th</sup> September 2012**  
Pathfoot Building, Stirling University



## PROGRAMME

09:00-09:30	Registration and Coffee
09:40-10:20	Keynote Address: <b>Malcolm Swan</b>
10:30-11:20	Talks/Workshops/Discussion Groups 1
11:25-12:15	Talks/Workshops/Discussion Groups 2
12:15-13:15	Lunch
13:20-14:10	Talks/Workshops/Discussion Groups 3
14:15-15:05	Talks/Workshops/Discussion Groups 4
15:10	Depart: Tea and Coffee available

## IMPORTANT INFORMATION FOR APPLICANTS

*No invoices will be sent – so please do not ask*

Receipt of the conference fee will book your place, and confirmation will be sent by email (email address required). Fees are non-returnable.

Cheques should be made payable to **The Mathematical Association** and sent to:–

Marcia Murray (2012 Stirling Conference)  
The Mathematical Association  
259 London Road  
Leicester LE2 3BE  
Tel 0116 2210013

An application form is enclosed.

## PROGRAMME OPENING SESSION

### Keynote Speaker:

**Malcolm Swan**  
(*The University of Nottingham*)

### *Designing Lessons for the Inquiry-based Classroom*

This session will look at the design of lessons that foster the development of concepts and processes in Mathematics, drawing on materials developed for classrooms across the world. We will focus on: making our values explicit; choosing appropriate tasks; structuring lessons to create opportunities for collaboration and reflection; and the effective use of formative assessment.

*Professor Malcolm Swan is a key figure in the world of mathematics education. His research interests lie in the design of teaching, assessment and professional development. This involves designing and analysing processes and products with and for mathematics teachers and learners.*

<http://www.nottingham.ac.uk/education/people/malcolm.swan>

**For programme updates visit: [www.m-a.org.uk](http://www.m-a.org.uk)**

### A) **Supporting Implementation of the New Qualifications**

*Fiona Robertson*

This workshop will offer some approaches to promote pupils' progress towards the new qualifications.

### B) **Curriculum for Excellence and Cooperative Learning – Senior Phase in Maths**

*Monica Kirson*

This workshop will keep everyone actively engaged! Once again I will lead you through a series of effective activities to deliver aspects of the new National Qualifications.

### C) **Sharing standards and Moderation in Mathematics**

*Deirdre Murray*

By breaking down the process of assessment into learning intentions, success criteria, evidence and feedback, this session will use examples from schools and the NAR to look at sharing standards and moderation in Maths. How do you share standards within a department or across a school cluster? What will your moderation model look like? What is your internal verification process? Special emphasis will be given to how schools in the Highland Region have tried to address these issues and to give you some support to take this forward.

### D) **Developing mathematical thinking through ‘low threshold – high ceiling’ tasks in the early secondary years**

*Alison Kiddle*

The NRICH website (<http://nrich.maths.org>) initially published problems for high-achieving students. Now we cater for a wider range of students by creating ‘low threshold – high ceiling’ tasks. In this session we will work on one or two tasks and discuss how such activities allow all students to engage with key mathematical processes, regardless of prior achievement levels.

### E) **Supporting students towards success in their Standard Grade Examinations**

*Mary Kay*

The talk will include: areas of the course which have become particularly successful, together with methods which have supported these successes; less successful areas, together with suggestions for improvement; reference will be made to the last diet of exams and the ongoing difficulties facing students.

### F) **Common Problems at Intermediate 2 Mathematics**

*Pam Ruddock*

Which topics are generally well done by pupils, and which cause most problems?  
A look at the questions from 2011 and 2012 which caused most problems for candidates.

### G) **Desert Island Proofs**

*Clive Chambers*

An opportunity to see half-a-dozen or so classic proofs and the chance to win a prize! As usual we will try to cover as wide an age range as possible. **Audience members should also bring with them a classic proof which they would like included at the next event.**

**H) Updates/Suggestions/Ideas from SQA's Senior Team Leader for the Quality Assurance Process of the new National Qualifications in Mathematics**

*Monica Kirson*

Newly appointed, I will give the facts about the verification process, offering ideas and suggestions as to how you, as classroom practitioners, can take your department forward and hopefully feel a wee bit more confident about the new internal assessments.

**I) Higher Maths in 2012**

An opportunity to hear what went well and what didn't and to discuss ways of improving classroom activities for the future.

*Jim Reid*

**J) Advanced Higher: small changes in approach that may make a difference?**

*Linda Moon*

This session will aim to cover many aspects of the course including resources, appeals, common errors, progression from Higher, changes to the arrangement document and teaching approaches.

**K) Advanced Higher Mathematics 2012**

*Bill Richardson*

How was AH maths for you in 2012? A chance to discuss the paper and consider where marks were gained and where marks were lost.

**L) Another whistle stop tour of even more engaging lesson ideas**

*Rachael Horsman*

Another chance to take a rapid tour of maths activities. All of those that will be described have been developed to encourage engagement with the subject. Active and collaborative learning is used alongside problem solving skills. The resources will include ideas that can be adapted for use with students of any age and participants will have the opportunity to have copies of the activities. Bring a pencil, some paper, a memory stick and a self addressed envelope!

**M) Maths and the Movies – How to make your own maths video**

*Andrew Jeffrey*

In this session, we will go through the process of creating a short film for use in maths lessons. It would be helpful if delegates could bring a laptop loaded with either the latest version of Windows Movie Maker (which is free) or iMovie (on Mac), and a camera with a lead to connect it to the laptop. This is not essential however, as those who are just interested in seeing how to do it are also welcome. Please also bring a memory stick to take a copy of the finished product.

**N) Dumping & Flushing**

*Helen Martin*

Recently we have had some animated debates about what 'real-life' contexts and 'cross-curricular' opportunities really mean and what 'good' ones might look like particularly given new courses such as Engineering Sciences. This session is an opportunity to explore one or two examples that we have been working on with Maths and Science teachers: a chance to share and discuss these and your own ideas and experiences.

*Continued overleaf*

**O) Introduction to a brand new online resource – Twig Maths**

*John Sexton*

Twig Maths helps students to understand key mathematical concepts by showing how maths is applied in the real world. It is free for all Scottish Local Authority schools through Glow and features 130 high quality short films presenting exciting examples of maths in action. Twig Maths engages students who struggle to see ‘why maths matters’. [www.glow.twig-world.com](http://www.glow.twig-world.com)

**P) The secret life of a formula**

*Julia Collins*

Some of our favourite and most basic formulae, for example the area of a circle or the sum of angles in a triangle, are actually gateways to fascinating and important areas of mathematics. We will look carefully at the proofs of these formulae and challenge the hidden assumptions within them, following in the footsteps of some of the greatest mathematicians of history.

**Q) Using language patterns and body language to improve learner performance in mathematics**

*Fiona Allan (NANAMIC)*

Recent research has demonstrated that using NLP (hypnotic language patterns and body language from family therapy) alongside good practice in teaching can make a difference to learners' performance. In 2011 a large research project (‘Adults Don't Count?’) carried out in the South East showed that working with teachers on pedagogy alone doubled the mean difference in relation to attainment scores, (compared to the control group), but when the sessions on pedagogy were combined with teaching teachers about NLP, the mean difference was tripled.

**R) TI-Nspire - Where is it now?**

*Nevil Hopley*

Nevil will present an interactive overview of the current capabilities and benefits from using handheld technology in the teaching of Mathematics to all abilities of 11-18 year olds. Using a wireless network of TI-Nspire handhelds (including some which have Computer Algebra Systems) he has identified several new classroom dynamics and learning experiences that regularly help students drive both themselves and their learning forwards. There are even implications for when teaching Maths without technology.

All delegates are welcome, regardless of their previous experience of using handheld technology in their lessons. If you last saw or used the TI-Nspire when it was first launched a few years ago, then do please come along to see the transformation that has taken place since then!

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For your record

Your choices	1	2	3	4	5	6
Workshop/Talks/Discussion Group						

**MA Bookstall**

A stall will be available for delegates to see the wide range of material which is produced. It will be an opportunity to buy at special conference rates and also for non-members to join.

**Come prepared!**

Preview at:

<http://www.m-a.org.uk/jsp/index.jsp?lnk=910>