The Mathematical Association
Secondary Education Mathematics Conference

Saturday 17th September 2011
Pathfoot Building, Stirling University

Keynote Speaker:

David Crawford
(*Leicester Grammar School*)

Magical Mathematics

David will look at some examples of mathematical magic tricks and discuss how tricks like this can be used to motivate pupils both to practise arithmetic so that they can get the tricks to 'work' for them and to explore algebra to create tricks of their own or to gain understanding as to why they are working. There will be plenty of audience participation required!

With over 20 years of classroom experience, David Crawford has always been interested in areas of maths beyond the standard curriculum and has written articles and a book, and given numerous talks and masterclasses on the subject of Mathematical Magic (although he always assures everyone who sees him perform that he is not a magician – it is all in the maths).

For programme updates visit: www.m-a.org.uk

PROGRAMME

09:00-09:30	Registration and Coffee
09:40-10:20	Keynote Address: **David Crawford**
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

PROGRAMME
OPENING SESSION

An application form is enclosed.

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 (2011 Stirling Conference)
The Mathematical Association
259 London Road
Leicester LE2 3BE
Tel 0116 2210013

O) TI-Nspire OS 3.0 New Features

Nevil Hopley

In April 2011, Texas Instruments released OS 3.0 for the TI-Nspire Handhelds and Computer Software. It contained many new features, including Colour, 3D graphing, something called 'Publish View', as well as the ability to export files in a format that can be interacted with using a web browser, completely separate from the software itself. This presentation will showcase the ease at which each of these new tools can be used to further enhance your lessons and their learning.

P) Circles

Ian Anderson

What are the basic facts? Why are circles important? What should pupils know about them? What interesting properties do they have? We will discuss these questions, and sometimes go off at a tangent.

Q) From one to infinity through questioning

Viv Brown and Fiona Allan (NANAMIC)

Recent research shows that changing or improving a teacher's questioning style, makes an impact in the classroom. In this session, Fiona and Viv invite you to join us in exploring closed and open questions, different ways of asking questions and when to use different types of questions.

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For your record

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

Lunchtime Presentation: TI-Nspire Playtime

This will be an opportunity for you to come and find out more about any of the TI-Nspire Handhelds or Computer Software options. Hands on, have a play, ask questions and leave knowing more!

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.

Preview at:

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

Come prepared!

Workshops/Talks/Discussion Groups

A) Features of effective practice in implementing the Curriculum for Excellence

Fiona Robertson, John Tease

Effective learning and teaching – taking account of international practice, let's take a closer look at some types of questions and activities which can enhance the development of young people's confidence and security in mathematics.

B) National Assessment Resource project at CfE Level 4 Algebra

Monica Kirson

In this workshop, you will experience the kind of CL activities which the pupils used to progress through the chosen level 4 Es & Os. You will be given the details of how evidence was gathered for assessment purposes. You will find out how feasible the NAR process is to manage in a Secondary school maths class. And you will find out what the experience was like for the teacher and pupils involved.

C) Linking cubes and the development of conceptual understanding

Paul Andrews

Linking cubes, when used judiciously, have the potential to unlock many mathematical concepts. In this session we shall examine a range of linking cube-related activities – focused on learners of all ages – that highlight the power of this ubiquitous but insufficiently used resource.

D) Developing mathematical thinking through 'low threshold – high ceiling' tasks in S1

Liz Woodham

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) Problem solving, proof and precision in mathematics: No. 6

Clive Chambers

Clive has put on his thinking cap again and will take a further look at presentations, non-routine questions and problems in mathematics that will help stimulate thinking skills and interest in a wide range of mathematics.

G) Does that make sense?

Jim Reid

A look at some of the things we say and write in Mathematics that are contradictory. Do we use proper Mathematical language and notations with our better pupils? Do we expect our better pupils to be able to communicate effectively using Mathematical language? In this session we will look at some of the issues and suggest some possible ways forward.

H) Question Banks for Higher Maths

George Kinnear, Steven O'Hagan

We will demonstrate *Quest*, our free web-based tool for searching and making use of hundreds of high-quality questions for Higher Maths, including previous SQA exam questions. Many teachers are already using this to make up exercises for their classes. We will also discuss the work we have done in producing our own banks of questions, including the objective and integrative questions which are available to purchase.

I) Tips for presenting candidates at Advanced Higher

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. This session will look at alternative orders to delivering the content, ways to keep pupils motivated, essential prior knowledge, potential problem areas as well as setting and marking Prelims.

J) Advanced Higher Mathematics 2011

Bill Richardson

How was AH maths for you in 2011? A chance to discuss the paper and consider where marks were gained and where marks were lost.

K) Another whistle stop tour of engaging lesson ideas

Rachael Read

Another chance to take a rapid tour of maths activities. All of those that will be trialled, from fly swats to group problem solving, 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!

L) Probability?

Andrew Jeffrey

Andrew returns to the conference once again! On this occasion, he will take a chance to entertain and inspire the audience.

M) Kilts and CAS (Computer Algebra Systems)

Nevil Hopley

In Scotland, as elsewhere in the United Kingdom, handhelds with CAS are not allowed in exams. There is not currently any real national interest in using CAS to improve maths teaching. Why bother then? Come and experience the harmless and highly productive ways in which CAS has been used in the Nevil's classroom to enrich, empower and accelerate learning. No student's algebraic skills were harmed in the development of this session – quite the opposite, in fact!

N) Mathematics for Excellence

Simon Johnson

Mathematics should be about thinking and logical reasoning, not simply learning procedures. This session offers some thoughts about teaching for understanding in the context of a new curriculum.