

From the Chief Executive**National GCSE developments**

You will be pleased to hear that the proposal to have two GCSEs in Mathematics is now almost certain to go ahead. The next stage will be piloting of an agreed model, starting in 2010; all three awarding bodies are expected to be involved. School students will be expected to take both. The content will be split so that one GCSE develops the subject along more formal lines while the other concentrates on how the subject is applied in context. Both will be of the same difficulty.

At the moment the fine details are still being agreed and so are not in the public domain. We expect this stage to be completed quite soon and to be able to cover what is a very exciting development at this summer's conference. No doubt many of you will want to discuss strategies for teaching the two alongside each other, and this will be an ideal opportunity.

A Level consultation

QCA are planning a consultation in April about the future shape of A Level Mathematics. We strongly urge you to respond to it. We will send out our commentary on the proposals once they have been published.

Staffing

Tom Button will be leaving us at the end of March to take up his new role as Mathematics Specialist with the new National STEM Centre based at the National Science Learning Centre in York. I know that many of you have met Tom and appreciated his input into CPD and revision days as well as his work on our website and online resources. He has been a real asset to MEI and so it seems right to take this opportunity to say "Thank you" and to wish him all the best in his new role.

Roger Porkess

GCSE 2010

All mathematics GCSEs are changing for teaching from September 2010. I have started work on the new MEI GCSE; you will find further details on the GCSE 2010 page in the Curriculum section of the MEI website. Thank you to those of you who have already filled in the short questionnaire there. It really helps me to know what you think. Please do respond if you haven't done so yet; you don't need to be teaching the MEI GCSE at the moment.

As well as working on our new GCSE, we are also working on new GCSE teaching materials which use contexts to develop students' understanding of mathematics. This will build on the work of the "Making Sense of Mathematics" project at Manchester Metropolitan University. We aim to enable students to be genuinely functional in their use of mathematics to solve problems. You will find some further information on the GCSE 2010 page of the MEI website.

There will be sessions on the new GCSE and on how to develop students' understanding from contexts at the 2009 MEI conference but, in the meantime, feel free to contact me with any questions.

Stella Dudzic

Programme Leader (Curriculum)

Exam feedback form

Thank you to those of you who have sent in comments on the examinations. Your feedback is important to us. We won't be sending out hard copies of the form in future but it will be available on the website. If we have your email address, we will email you a link. If you didn't get an email link it means either that we don't have a correct email address for you or that we don't have one at all. Please email the office to let them have a current address.

What's new at the 2009 MEI conference?

Soon the thoughts of mathematics teachers will be turning to the next academic year with all its changes and challenges. What is happening to GCSE Mathematics? What exactly is functional maths? Where can teachers get ideas to help them teach A Level? These questions, and many more, will be addressed at the MEI conference at the University of Hertfordshire (June 29 to July 1).

The conference programme will be going out soon; here is a selection of the sessions that are on the programme:

- Stretching students in AS Core
- Short, easy practicals for Mechanics lessons
- Cot deaths and court cases
- Statistics for non-mathematicians and AS Statistics
- Applications of Decision Maths in the workplace
- An introduction to Geogebra
- New ways to add a sparkle to your A level teaching using ICT
- How will GCSE change?
- Introduction to Realistic Maths Education

Some of the regular sessions have been given a year off so that we can include sessions which were requested in the feedback following last year's conference. We hope you'll agree that there's a lot on offer to all mathematics teachers, whether they are new or experienced. You can find the handouts from last year at <http://www.mei.org.uk/cpd/conference.shtml>.

We look forward to seeing you at the conference. We are grateful to More Maths Grads for sponsoring the 2009 conference and to Hodders for providing a free copy of the Companion to Advanced Mathematics and Statistics and an MEI A Level revision guide of your choice to all delegates.

Stella and Bernard

GCSE Mathematics Extension Materials

MEI has produced a set of twenty GCSE Mathematics extension materials aimed at students who are working towards GCSE Mathematics and would benefit from exposure to mathematics beyond the GCSE specifications. The materials are intended to introduce students to new ideas so as to stimulate their interest in the subject whilst reinforcing some of the concepts in GCSE.

Each resource:

- Starts from a topic or idea that is in GCSE Mathematics and features a 'What you should know' section.
- Has a 'New idea' that is an extension to GCSE Mathematics.
- Has a task for students to attempt so they can investigate the idea.
- Has ideas for further investigation suggested in a 'Take it further section'.
- Contains a brief explanation of how this topic is developed at A Level.
- Is on a single sheet of A4 which can be copied and given to students.
- Has teachers' notes, including solutions. These are available to all schools who subscribe to the online resources or register with the Further Mathematics Network. Registration with the Further Mathematics Network is free and will also give you access to information about local events which could be useful for your students. See: www.fmnetwork.org.uk/register.php

The materials are free to all. To see them, and some suggestions for how they can be used, go to www.mei.org.uk/meiresources/gcseextension.shtml

Tom Button

FSMQ formula sheets

From summer 2009 formula sheets will be allowed in FSMQs. You can see the formula sheets for Foundations of Advanced Mathematics and for Additional Mathematics on the OCR or MEI website.

Continuing Professional Development

Teaching Advanced Mathematics (TAM)

The TAM programme is now in its fifth year with well over 200 teachers and their schools and colleges having benefited from the course; indeed, many teachers enrol on the course on the recommendation of colleagues who have done it in previous years.

You might have seen the report into the impact that the course continues to have on those who completed it over a year ago. Copies of the Gateway report are available to download from the MEI website or in hard copy form, free of charge, from the MEI office. An email, typical of many, arrived this week from a teacher on the 2006-07 course: "I still think your course not only improved my teaching but also made me enjoy it more."

Applications are now invited for places on the course commencing in the summer. If you, or any of your colleagues, are interested in applying, please fill in the short form on the TAM page of the MEI website and we will forward your details on to your chosen university. In the meantime, you will be given access to on-line materials for Core 1 to allow you to make a head start on some of the private study.

Hosting your own Mathematics CPD

In with this newsletter you will find a flyer advertising a small selection of the CPD courses which the MEI central team could offer in your school or college. These courses would be designed to meet your specific needs, would take place on dates convenient to you and would help you to establish stronger links with colleagues in neighbouring schools and colleges.

Forthcoming A level applied maths CPD courses

Introduction to Mechanics	Introduction to Statistics	Introduction to Decision Maths
Warwick University	London South Bank University	Halewood College near Liverpool
Day 1: Wednesday 25 th March;	Day 1: Tuesday 3 rd March;	Day 1: Tuesday 31 st March ;
Day 2: Thursday 7 th May	Day 2: Wednesday 29 th April	Day 2: Saturday 6 th June

More details on the website

Bernard Murphy

Programme Leader (CPD)

Teaching Further Mathematics

The next TFM course will be starting in July 2009; details and application forms are on the MEI website.

TFM is a fifteen month professional development course aimed at those who currently teach A Level Mathematics and want to update their subject knowledge so they can teach Further Mathematics with confidence. It covers the pure mathematics from **all Further Mathematics specifications** with emphasis on expanding the participants' mathematical horizons and giving them a deeper understanding of the links within mathematics. Teachers enrolled on the course receive

- textbooks for each unit
- two years access to the MEI online resources, which includes the student and teacher resources for the Further Pure Mathematics modules for **all specifications**. There is also material written specifically for the course and accessible only to course participants and there are forums for support
- online tutorials
- three training days
- email support from the unit tutor.

If you are interested in registering for the course or would like more information please get in touch:

sue.depomerai@mei.org.uk

Sue de Pomerai

TFM co-ordinator

Industry Update

MEI has been invited by SSAT to provide support for teachers of mathematics in diplomas. The funding will allow an MEI Lead Practitioner in each of the government regions to offer advice and support for teachers during the academic year 2008/9 and possibly beyond.

SEMTA has asked MEI to contribute 20 – 25 days' work to its Engineering / Science Workforce Development and Competency Framework. The project is intended to help clarify routes to professional development in industry. For MEI the project offers an opportunity to explore the use of mathematics in various engineering workplaces. It should also enable MEI to network extensively with companies that may prove fruitful sources of future opportunities to collaborate.

MEI and the IET intend to hold a second joint conference on 1 June 2009, with the title *The uses of mathematics in the engineering workplace*. We would like practising teachers to attend, to help consider the steps needed to provide exemplars of mathematics being used in the engineering workplace, in a form that is suitable for teachers to use with their students. Please contact richard.browne@mei.org.uk for more information.

Richard Browne

Programme Leader (Industry)

The Further Mathematics Network

Newton's mechanics: Who needs it?

Last summer, members of the Further Mathematics Network's central team, in partnership with a group of university academics and with support from the Mathematics, Statistics and Operations Research (MSOR) Higher Education Academy, organised a symposium at the Møller Centre at Churchill College, Cambridge. The symposium, entitled 'Newton's mechanics: Who needs it?', was motivated by concerns amongst university teachers of engineering, mathematics and physics about the decreasing level of knowledge of Newtonian mechanics amongst new undergraduates. This results in problems in applying mathematics in modeling and problem solving.

The symposium was chaired by Sir Peter Williams and brought together experts from schools, colleges, universities and industry. A series of presentations and discussion groups explored: the value of Newtonian mechanics for the teaching and learning of mathematical modeling and problem solving skills;

- how changes to A level Mathematics have resulted in a reduction in the level and amount of Newtonian mechanics students are now learning at A level;
- the impact of this reduction on students' preparation for university;
- practical measures for increasing uptake of mechanics at ages 16 to 19.

The symposium report contains a number of recommendations including:

Key recommendation 5: Schools and colleges offering A level Mathematics should provide access to tuition in both Mechanics 1 and Mechanics 2, either as part of A level Mathematics or as part of AS/A level Further Mathematics. Schools and colleges that cannot provide such tuition directly should collaborate with other local schools and colleges or with external providers to ensure their students can access tuition.

Recommendation 4.1: Schools and colleges should ensure that AS/A level Further Mathematics tuition is available to their students, and university departments should consider encouraging Further Mathematics in their prospectuses and offers.

The full symposium report was published in January and may be downloaded via the MEI website,

www.mei.org.uk.

Charlie Stripp

Programme Leader: The Further Mathematics Network