

Minutes of the JMC Council meeting held at the Royal Society on Tuesday 23 February 2010.

The JMC is grateful for the financial support of the Royal Society.

Present

*Officers*

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David Martin

Adrian Oldknow

Chair

Honorary Secretary

Honorary Treasurer (Chair of meeting)

*Members*

Peter Johnston-Wilder

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Janet Ainley

Tony Mann

Andrew Osbaldestin

Colin Campbell

Nigel Steele

Elizabeth Winstanley

Stella Dudzic

Sally Barton

Lynn Churchman

Gerald Goodall

Barry Lewis

Association of Mathematics Education Teachers

Association of Teachers of Mathematics

British Society for Research into Learning Mathematics

British Society for the History of Mathematics

Conference of Heads of Departments of Mathematical Sciences

Edinburgh Mathematical Society

Institute of Mathematics and its Applications

London Mathematical Society

Mathematics in Education and Industry

National Association for Numeracy and Mathematics in Colleges

National Association of Mathematics Advisors

Royal Statistical Society

The Mathematical Association

*Co-opted members*

James Nicholson

Sue Sanders

Ros Sutherland

British Congress of Mathematics Education and JMC  
International Representative

International Commission on Mathematical Instruction

Immediate Past Chair

*Observers*

Fiona Allan

Diana Coben

Tony Holloway

Advisory Committee on Mathematics Education

Adults Learning Mathematics

Department for Children, Education, Lifelong Learning and Skills

Stephen Stanton Department for Children, Schools and Families  
 --- The Maths, Stats & OR Network of the Higher Education Academy  
 Jane Imrie National Centre for Excellence in the Teaching of Mathematics  
 --- Office for Standards in Education  
 --- Operational Research Society  
 Sue Pope Qualifications and Curriculum Development Agency  
 Martin Smith Royal Society  
 Paul Scruton School Mathematics Project  
 John Harris Sector Skills Council for science, engineering and manufacturing technologies in the UK  
 Teresa Smart The National Strategies  
 --- Training and Development Agency for Schools  
 Bill Richardson United Kingdom Mathematics Trust

*Guests*

Chris Budd Mathematics Task Force  
 Coralie Colmez Mathematics Task Force  
 Carrie Dunne Mathematics Task Force  
 Richard Dunne Mathematics Task Force  
 Roger Porkess Mathematics Task Force  
 Nick Todd Northern Ireland  
 Carol Vorderman Mathematics Task Force

*Visitors*

Nick Bowes Advisory Committee on Mathematics Education  
 Nick von Behr Royal Society

<b>Item</b>	<b>Action</b>
<b>1. Apologies</b> Luke Graham (TDA), June Barrow-Green (BSHM), Paul Harper (ORS), Celia Hoyles (NCETM), Jane Jones (Ofsted), George Knights (ATM), Duncan Lawson (Chair), John Marriott (HEA), Roger Porkess (MEI), Brian Robinson (NAMA), Libby Steele (RS)	
<b>2. Appreciation of departing representatives</b> None	
<b>3. Welcome to new guests, representatives, alternates and visitors</b> New representatives: None	

<p>Alternates: Lynn Churchman (NAMA), Stella Dudzic (MEI), Jane Imrie (NCETM), Tony Mann (BSHM), Martin Smith (RS)</p> <p>Guests: Chris Budd (MTF), Coralie Colmez (MTF), Carrie Dunne (MTF), Richard Dunne (MTF), Roger Porkess (MTF), Nick Todd (NI), Carol Vorderman (MTF)</p> <p>Visitors: Nick Bowes (ACME), Nick von Behr (RS)</p>	
<p><b>4. Minutes of the meeting of Tuesday 10 November 2009</b></p> <p>Accepted</p>	
<p><b>5. Matters arising from the minutes</b></p> <p>None beyond clarification</p>	
<p><b>6. Reports from Executive</b></p> <p>a. Chair: None</p> <p>b. Secretary:</p> <p>CfSA: Following discussion after our last Council meeting JMC have agreed to Observer status with CfSA. The CfSA is considering its future given that current DCSF funding is coming to a close.</p> <p>Officers: The following Regulation was added to our Constitution</p> <p><i>3. Honorary Secretary and Treasurer:</i></p> <p><i>Officers other than the Chair will normally have a term of office of three years and each hold office for a maximum of two contiguous terms. Where possible, elections will be held so that the terms of office of Chair, Honorary Secretary and Honorary Treasurer begin in consecutive years.</i></p> <p>The natural sequence for elections would be for the current term of office of Honorary Secretary to come to a close this November 2010 and that of the Honorary Treasurer to come to a close in November 2011. The current three year term of office of Chair is due to come to a close in November 2012.</p> <p>c. Treasurer: Subscription requests are being processed</p> <p>d. Chair of Nominations Committee:</p> <p>The JMC Representative on the National CPD Committee is to be Lynn Churchman</p> <p>Four names are being put forward to LMS for them to select the next UK Representative to ICMI</p>	
<p><b>8. Report from ACME</b></p> <p>Taken at 18.</p>	
<p><b>9. Working groups</b></p> <p><b>a. ICT and Mathematics</b></p>	

<p>The initial meeting has been held and several others are planned. The group involves expertise from many sectors: primary, secondary and HE. A list of the members was requested.</p> <p>Diana Coben said FE and adult expertise was needed;</p> <p>Barry Lewis asked about protocols for a launch;</p> <p>Sue Sanders queried the role of the Royal Society with respect to signing off a final report. This was not needed for a JMC report.</p> <p><b>b. Primary</b></p> <p>David Martin said that he was working with Lynn Churchman and Lynne McClure on setting this up. Barry Lewis asked if funding was being looked for. This will be sought.</p>	<p>List of members (Ros Sutherland)</p>
<p><b>9. Report from NCETM</b></p> <p>Jane Imrie emphasised that the NCETM portal (<a href="http://www.ncetm.org.uk">www.ncetm.org.uk</a>) is being expanded. The NCETM annual conference is to be held on Thursday 17 June 2010.</p>	
<p><b>10. Standing Committees:</b></p> <p>a. BCME</p> <p>Around 420 delegates were booked and the number is rising, A report would be given at the June JMC meeting and there needs to be thought given to 2014.</p> <p>In University Place, there is wifi access on the lower floors.</p> <p>Janet Ainley expressed concern about the online booking; poor information provided about research sessions which gives a poor impression of BSRLM. Session codes were hard to understand.</p> <p>b. ICMI</p> <p>Nothing to add</p>	<p>BCME report [and discussion] at June meeting (James Nicholson)</p>
<p><b>11. Northern Ireland</b></p> <p>Nick commented that there was little that was fresh but went on to say that: NI was not planning to have stand alone functional skills; in most contexts the terms numeracy and mathematics were interchangeable;</p> <p>there is a report due out soon on a survey of primary skills with focus on the most and least effective;</p> <p>the school numeracy co-ordinator was in general an administrator but there was some pressure to involve practitioners more;</p> <p>efforts were being made to minimise the bad effects of the primary/secondary transition.</p> <p>Paul Scruton asked about mathematics education in secondary after changes; grammar schools take 35% with the rest attending non-selective</p>	

<p>schools although these schools had some very good teachers. There is some pressure to remove the 11 plus. Adrian Oldknow asked what issues there were in Scotland.</p>	
<p><b>12. Higher Education</b> Elizabeth Winstanley commented that savage cuts in funding were expected resulting in many well qualified students being denied places.</p>	
<p><b>13. More Maths Grads (MMG)</b> Nigel Steele stated that the resources developed by MMG were being collated into “MMG in a box” which would be a physical resource distributed to schools and colleges and HE institutions throughout England and Wales.</p>	
<p><b>14. Teacher Education</b> There are concerns about Teachers' Subject Knowledge. Lynn Churchman: JMC should be proactive about this. Staff turn over was a diversion of funds. There is a need for inter-organisational activity. ACME / NCETM / National CPD committee / JMC should discuss the way ahead.</p>	
<p><b>15. Presentation on UKMT</b> The recently published UKMT yearbook was handed out and a list of features within it that those present might find of interest was discussed. There was a good discussion of the UKMT with particular emphasis on its coverage and the reduction of the cohort.</p>	
<p><b>16. Update on current developments.</b></p> <p>a. <i>TDA</i> Applications were up by approaching 30%.</p> <p>b. <i>QCDA</i> There is a publication under development ‘Understanding Progress’ which is to help parents, guardians, carers and learners understand what levels in English and mathematics mean and offer advice on activities that can be done at home. [<a href="http://nationalstrategies.standards.dcsf.gov.uk/node/349559">http://nationalstrategies.standards.dcsf.gov.uk/node/349559</a>]</p> <p>c. <i>DCELLS</i></p>	

<p>Nothing to add</p> <p>d. National Strategies</p> <p>There was reference to the winding down of the National Strategies and what support will be available to schools and Local Authorities after 31 March 2011.</p> <p>Adrian Oldknow asked whether the ‘Practical Support Packs’ would continue to be available. An answer to this will be sought.</p>	<p>Availability of ‘Practical Support Packs’? (Teresa Smart)</p>
<p><b>17. Reports from meetings</b></p> <p>No additional reports</p>	
<p><b>18. Morning discussion (including 8.Report from ACME)</b></p> <p>Fiona Allan introduced this discussion item.</p> <p>Several points were identified:</p> <p>GCSE Two Tier Models: anecdotal evidence suggests that teaching of the two tier GCSE appears to be having some negative effect on progression to A-Level.</p> <p>GCSE Multiple and Early Entries: many are concerned about recent increases.</p> <p>Pilot of the linked pair of GCSEs: ACME has concerns over the accredited specifications. There is a meeting planned for March 9th to discuss this in more detail with awarding bodies and other key stakeholders.</p> <p>Advanced Extension Award (AEA): ACME is applying pressure to retain the AEA in mathematics.</p> <p>Level 3 Pathways: there have been lots of submissions from organisations across the STEM landscape and beyond and it is ACME’s intention to publish a definitive position statement in May.</p> <p>Paper for the National CPD Committee (24th February): sustained reform needs CPD; new proposals need CPD; additionally there is an ongoing need for CPD. ACME is working with the National CPD Committee to produce a paper for the STEM High Level Strategy Group on this issue.</p> <p>Masters in Teaching and Learning (MTL): ACME has expressed concerns to TDA on the issue of subject-specific knowledge within the qualification</p> <p>Ofqual processes: ACME has written to Ofqual about (a) the need for more transparency, (b) the need for subject expertise to inform their decision making and (c) not treating all subjects uniformly. ACME also raised concerns about the relationship between awarding bodies and text book publishers.</p> <p>ACME is pushing ahead with its project on Mathematical Needs. Theme A, covering top down employer and university mathematical needs, is now at the research stage. The bottom up, looking at classroom needs, is running a series of small seminars including a recent one on exceptional teachers.</p> <p>New ACME members: an open call has gone out for two new members.</p>	

ACME annual conference: 2 March 2010	
<b>19. Dates of future meetings at the Royal Society</b> Tuesday 8 June 2010 Tuesday 9 November 2010 Tuesday 22 February 2011	
<b>20. AOB: None</b>	

<p><b>Afternoon discussion</b></p> <p><b>Emerging findings from the Mathematics Task Force introduced by Carol Vorderman</b></p> <p><b>Roger Porkess introduced Carol and the Taskforce</b></p> <p>Roger explained that on hearing the announcement that David Cameron had asked Carol to head a taskforce examining mathematics education in England he had, probably as many other people, been sceptical. However, after a long meeting requested by Carol, with him and Charlie Stripp from MEI, he realized there would be no trivialization of the situation in Carol's work. Following this meeting, Carol asked Roger to join the taskforce. She then spent several months conducting her own research and getting a focus for the taskforce.</p> <p>Roger feels that Countdown does not do justice to how passionate Carol is about mathematics. She has also been a school governor, has written many textbooks and knows a great deal about the subject.</p> <p>Roger explained that the remit for the taskforce is just for England, however they are open to all advice.</p> <p>Roger stressed the fact that this report is not a gimmick and is a very serious piece of work, perhaps even the best thing he has been involved in.</p> <p><b>Carol's presentation</b></p> <p>As the JMC already know Roger Porkess and Chris Budd, Carol introduced Richard Dunne to the JMC members. She explained that the work done by taskforce members is all voluntary. She thanked all the bodies who have opened their doors to the taskforce over the past few months.</p> <p>She explained that the remit for the taskforce is to determine how the country can move towards a world class provision in mathematics. The Taskforce does not work on details such as precise areas of the curriculum, but is forming an overarching view on how education is provided to children from age five to higher education, through to teacher training and</p>	
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back into teaching. There are many individuals who are working within their own part of the education world, and Carol has spoken to many of them.

Carol said that mathematics is critically important as a subject, and this has been demonstrated even more over the past two years with the emergence of the BRIC countries and the economy crisis. Carol feels that mathematics should be a subject of special status. She would welcome any comments and support on this. To support this statement, she ran through some issues in the current system.

Carol started with the issues at primary. She explained that she is an objective observer, and through her TV work has experienced more individual comments about people's views on numbers and mathematics than anyone in the room.

She is astonished at how, over the last 10 years, there has been an overwhelming micro-mismanagement of every minute in the classroom. She explained that the National Numeracy Strategy (NNS) has become compulsory by its nature, and contains a lot of things that make no mathematical sense. She cited the example of the criteria of "understanding that doubling is the undoing of halving". She says that teachers have reported that they have to operate according to the NNS as Ofsted, they are told, demands it, and that all the available teaching materials are based on it. The taskforce would like to see the teachers freed from this.

Carol is concerned about the Rose Review and its topic-based curriculum. She is concerned about the number of hours of formal mathematics teaching currently undertaken in Primary Schools and explained that the taskforce have had reports of formal mathematics time already being reduced in some schools in preparation for the new primary curriculum..

Carol continued with the issues at Secondary.

There is a shortage of teachers and it is difficult to get figures about the number of lessons at secondary that are taught by non-mathematics specialists. Anecdotal evidence shows that students often have at least two teachers a year, and the non-specialist teachers are placed in the lower sets and lower years because the emphasis concentrates on the League Tables for GCSEs. There is a lot of artificial pressure put on children and schools. Carol talked about the drop in attainment in Year 7 and explained that there is very little communication between primary and secondary schools. Children go through the National Curriculum tests in Year 6 only to be re-tested again by their secondary teachers. Numeracy levels of pupils entering secondary schools are being called into question as 1 in 5 students are not at the expected level (level 4). The taskforce are getting feedback

from teachers that they have to teach primary arithmetic in order to get through some mathematical ideas like, for example, factorization. Carol talked about the pilot for the twin GCSE that is coming up, and explained that the taskforce is fully behind it, but is concerned about the current plan of stopping the pilot after two years for a review instead of expanding seamlessly. She also explained the pitfalls of the 2-tier system at GCSE.

Carol reported that she has spoken to hundreds of students who said they didn't realise they would need to understand numbers in their further studies. The Sainsbury's CEO and CBI members have stated that the functional skills of those entering the workforce are not good enough, both for the society to advance, and for the individuals themselves to function. For these reasons, Carol and the taskforce feel that some sort of mathematics should be compulsory until age 18 which would, amongst other things, have a knock-on effect on those becoming primary teachers. Carol talked about the number of pupils doing mathematics A level, which dipped down to 50 000 in 2002 and is now back to over 70 000. The Further Mathematics Support Programme, on a very small budget, has been very successful and Chris Budd added that HE is very grateful for that.

Carol then talked about some particular bodies involved in education. She explained that Ofsted has reduced its reporting of mathematics teaching since the new 2005 framework, when she feels there should be a deliberate emphasis on mathematics.

She explained her concerns about QCDA and Ofqual, and the fact that their teams of mathematics specialists have been disbanded. She is also concerned about the political ideology that all A Levels should be equal. She feels that excellence should be cherished.

Carol feels that the DCSF suffers from a typically British malaise. There are no mathematics specialists in the department, something she thinks would not happen in any other developed countries.

Carol explained that the taskforce will have an Interim report out in March, with a full report to follow.

### **Questions and Answers**

Janet Ainley - Chair BSRLM: She was a member of the Williams review, and is a primary specialist. She welcomed what Carol said about the NNS, and thinks the phrase micro-mismanagement is very relevant, but has a

different perspective on the Rose curriculum. She said that mathematics has its own area of learning (mathematical understanding) but thinks that mathematics should be done across the curriculum, and the new curriculum will enable that.

Carol Vorderman: She agrees that mathematics should be included in other topics and subjects, but this should not take from the formal mathematics teaching time.

Janet Ainley - Chair BSRLM: She also finds that the Primary PGCE courses do have a big emphasis on mathematical knowledge.

Carol Vorderman: She finds this interesting, as it is not the feedback she has been getting.

Ros Sutherland - ex-chair JMC: She thinks that compulsory post-16 mathematics is a good idea and wonders if the taskforce have had a look at the International Baccalaureate.

Carol Vorderman: She explained that the taskforce want something which will be provided by all schools, and tailored to specific needs.

Ros Sutherland - ex-chair JMC: She explained that there is a move towards a better communication between primary and secondary, and that there is an increasing number of schools that do this eg: ARK schools and that perhaps the structure needs changing.

Carol Vorderman: She feels that there are a lot of issues involved at the moment with the move from primary to secondary school, for example the fact that children are often going from small schools to big ones. She would like to activate something which could start quickly to help with this, rather than waiting for the move to happen. However, this would not be the remit for the taskforce to recommend a curriculum. The taskforce provides an overview.

Ros Sutherland - ex-chair JMC: She feels there is a tension at primary between the emphasis on skills and knowledge. This 'false polarisation' has been well reported in the Cambridge review.

Nigel Steele - IMA: He supports compulsory mathematics post-16. However he does feel that there is a concern that this might lead to people who should be doing the full mathematics A Level being entered for easier things.

Chris Budd: He feels that this is a question of resources. If the possible 'Pathways' for students are all done very well, then there will be a genuine choice and not to the detriment of mathematics degrees.

Roger Porkess: The taskforce is aware of the current ACME 'Mathematical Needs' report which will greatly inform the discussion. He feels we should wait for the evidence.

Nick Bowes – ACME: He feels that part of the solution may be a more sophisticated use of targets, rather than the single current target for A Level. Having a single target focuses attention away from the 85% of students who don't do A Level mathematics.

Bill Richardson – UKMT: He feels that there is a problem specific to England with the loss of momentum over the summer holiday when pupils leave school for college.

Lyn Churchman - Chair of NAMA: She would like to counter the taskforce's view of the NNS. Her day job is to work with the ARK academies, in challenging areas. Because the academies are considered as pseudo-independent, they have to pay for the NNS material, so do not have access to it. They feel they are disenfranchised by this. We should not dismiss the use of national resources, but rather enable teachers to be discerning about what is offered.

Sally Barton - NANAMIC (association has broadened to include working with prisons): She wonders how post-16 mathematics would be funded, and whether it would need to be assessed. She feels this would be a difficult thing to do, as for example having an assessment for functional skills is artificial and therefore nearly impossible.

Carol Vorderman: She feels this level of detail is for experts to decide.

Chris Budd: The taskforce has had long discussions, with the CBI for example about functional skills. The key point is that they want this to be addressed pre-16, which would be done with the linked pair of GCSEs.

Roger Porkess: Universal 16-18 provision cannot be done immediately. We will need a route map of how to get there.

Carol Vorderman: We do feel however that there is a deadline for this on a macro level, in terms of England staying a major player in the world economy.

Jane Imrie – Deputy Director NCETM: She thinks that the Free Standing Mathematics Qualifications (FSMQs) are good for teachers who want to increase their mathematical knowledge. However, they still have limited take up.

She also feels that the NCETM has been successful in showing that CPD is more than just going out for a course – it works collaboratively in schools making use of research and the school’s own research. Teachers should not always have to take time out from teaching to do their CPD.

She feels that CPD is at the moment frontloaded into ITT, when it should really be career-long. There should be more possibilities for teachers than just getting an MTL.

The recent select committee report proposed the idea of a ‘license to practise’, which would require teachers to do some CPD.

Carol Vorderman: She asked the NCETM members what their response would be if the NCETM was asked to provide more CPD in substance.

Jane Imrie – NCETM: She feels that this could happen. The NCETM is trying to build a more sustainable network of specialist teachers.

Adrian Oldknow – JMC: He feels that teaching could be made more efficient if there was a better use of technology instead of teaching techniques that aren’t used anymore.

Bill Richardson - UKMT: There are subject associations that offer CPD, but they struggle because of funding (ie: subscription-based). The NCETM is the principle provider because of its central funding. He calls this a ‘stinging nettle’ in the system.

Carol Vorderman: She explains that NQTs have a 10% non-teaching time on top of the 10% Planning, Preparation and Assessment time for teachers, which could be used for CPD.

Jane Imrie – NCETM: She explains that Bill was talking about the fact that the subject associations’ work is very different from online CPD provision, and have a lot of potential because they can provide very bespoke support. However, this is being stopped by the generic nature of the National Strategies. She also states that there should be a standard qualification for CPD providers.

Nick von Behr – Royal Society: He mentioned the new mathematics specialists at primary which he feels is an important area to profile. He also mentioned the primary ‘science quality mark’ for schools (from the Association for Science Education, ASE) which is being developed, and

asks whether a similar thing could be done for mathematics.

Adrian Oldknow – JMC: He feels that science gets a great deal in terms of CPD, which mathematics doesn't. He also commented that mathematics is the final letter on STEM – should it be changed?

Carol Vorderman: Said we could do that on Countdown!

Andrew Osbalsestin – HoDoM: He asked how much there will be in the report on HE. He is concerned about the number of students being refused places, fees and funding.

Carol Vorderman: She explained that the taskforce is reporting to Michael Gove and the DCSF, which does not deal with HE. However, the taskforce is very aware of all the issues.

Chris Budd: He explained that one of the reasons he is on the taskforce is to represent HE, both in terms of the needs of HE, and in terms of thinking about how to encourage qualified graduates to become teachers.

Carol Vorderman: She reiterated that HE is a very important part of the taskforce's work. It will be a chunky section in the report.

Nick von Behr – RS: He talked about the 'chartered mathematics teacher' status which formally requires 30 hours of CPD.

Carol Vorderman: There have been a lot of excellent smaller initiatives. Carol continued that the mathematics world is full of deeply passionate people, as in the NCETM, and that there needs to be some way of increasing the range of CPD.

Jane Imrie – NCETM: She worries that Adrian Smith raised a lot of the issues that the taskforce are raising, and there are still many gaps in what has happened. She asked how the taskforce will make things happen and be sustainable, and how the NCETM, and other bodies, can help.

Carol Vorderman: She feels that this is an important discussion that should take place after the interim report comes out.

Adrian Oldknow - JMC: He asked 'whose teachers are we?' and stated that there is a real tension in schools to search for your own CPD, particularly if HMIs and LAs are losing their [mathematics] infrastructure.

Lynn Churchman - NAMA: Headteachers can't find the funding for

mathematics departments as money goes elsewhere in the school. Senior managers in schools are the problem in many instances.

Carol Vorderman: As there are so many initiatives, schools are forced to make certain logical and risk assessment decisions.

Ros Sutherland, ex-chair JMC: She brought up the difference in having CPD provided by mathematics departments, as opposed to mathematics education departments. The two types of institution are not often working together. She is also worried that the MTL does not contain much mathematics, hence the ACME and JMC letter to the TDA.

Chris Budd: He feels that the provision of CPD through mathematics departments is to be encouraged. He raised the problem of 'rarely cover' and tells the audience that he has raised this issue with Michael Gove.

Carol Vorderman: She thanked everyone and welcomes any comments by email. She would like to have further meetings in smaller groups, about CPD for example.

She stressed the point that the taskforce is non-political and is driven by its members' love for mathematics as a subject. She told the audience that the taskforce appreciates any practical approaches that can be recommended, so bring them to the taskforce's attention.

[With thanks to Coralie Colmez for draft notes of the afternoon discussion]