

JMC**Joint Mathematical Council
of the United Kingdom****Minutes of the JMC Council meeting
held at the Royal Society
on Tuesday 7 June 2011**

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

Present*Officers*

Duncan Lawson	Chair
Gerald Goodall	Honorary Secretary
Paul Harris	Honorary Treasurer

Executive Secretary

David Martin	Executive Secretary
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Members

Jenni Back	Association of Mathematics Education Teachers
Peter Lacey	Association of Teachers of Mathematics
John Monaghan	British Society for Research into Learning Mathematics
---	British Society for the History of Mathematics
---	Conference of Heads of Departments of Mathematical Sciences
Colin Campbell	Edinburgh Mathematical Society
Nigel Steele	Institute of Mathematics and its Applications
Elizabeth Winstanley	London Mathematical Society
Paul Harris	Mathematical Association (alternate for this meeting)
Charlie Stripp	Mathematics in Education and Industry
Sally Barton	National Association for Numeracy and Mathematics in Colleges
Lynn Churchman	National Association of Mathematics Advisors
Roeland Beerten	Royal Statistical Society

Co-opted members

Ros Sutherland	JMC International Representative
---	International Commission on Mathematical Instruction

Observers

Lynne McClure	Advisory Committee on Mathematics Education
Jeff Evans	Adults Learning Mathematics
---	Department for Education
Tony Holloway	Department for Education and Skills [Wales]
John Marriott	The Higher Education Academy Mathematics, Statistics and OR Network
---	National Centre for Excellence in the Teaching of Mathematics
Jane Jones	Office for Standards in Education
Louise Orpin	Operational Research Society
Martin Smith	Royal Society
Paul Scruton	School Mathematics Project
John Harris	Sector Skills Council for science, engineering and manufacturing technologies in the UK
Angela Mabee	Training and Development Agency for Schools
Bill Richardson	United Kingdom Mathematics Trust

Also present

Conrad Wolfram	Wolfram, for afternoon discussion item
Malcolm Swan and Geoff Wake	Primas, for afternoon discussion item
Peter Thomas	By invitation, in particular for agenda item 20
Nick Todd	Northern Ireland

- 1 Apologies** Paul Andrews (UK representative to ICMI), June Barrow-Green (BSHM), Alison Clark-Wilson (MA), Diana Coben (ALM), Catharine Darnton (RSS), Celia Hoyles (NCETM), Tony Mann (BSHM alternate), Libby Steele (Royal Society).
- 2 Welcome to new representatives, alternates, guests and visitors** Alternates: Roeland Beerten (RSS), Jeff Evans (ALM), Angela Mabee (TDA), Martin Smith (Royal Society).
Malcolm Swan and Geoff Wake (Primas), Conrad Wolfram (Wolfram) and Peter Thomas (by invitation) were also welcomed for their respective items.
- 3 Appreciation of departing representatives** Appreciation was expressed to Tony Holloway, who would shortly be leaving DfES [Wales], for his long service to JMC. He reciprocated, indicating that he had greatly valued Observer status and that he hoped that the contact with DfES [Wales] would be maintained.
- 4 Minutes of the meeting of Tuesday 22 February 2011** *Paper JMC-2011-Feb-Minutes*
Accepted.
- 5 Consideration of any matters arising from the Minutes that do not appear on the main agenda**
1. Minute 5, item 2 [JMC involvement in Ofqual international comparison exercise].
Duncan Lawson reported that the first stage was now complete in respect of mathematics input. A summary report was in progress. Publication of the complete report was expected next year.
 2. Minute 12 [launch of ACME Mathematical Needs Report].
Martin Smith advised that this would now take place on 14 June.
 3. Minute 17(e) [linked pair Mathematics GCSE pilot].
David Martin reported that it was expected that DfE would be calling a meeting in September on arrangements for taking the pilot forward. Martin Smith added that an evaluation report on the pilot was expected.

[Note. This matter is also referred to in item 7 of paper JMC-2011-June-ACME.]
- 6 Election of Honorary Treasurer for 3-year term commencing November 2011** There had been one nomination, of Paul Harris, who was therefore declared elected. He would take Office in his elected capacity from the end of the November 2011 AGM.

Duncan Lawson reminded members that this election had been organised according to the procedures adopted under the current suspension of the Constitution. See also Minute 7(ii).

7 Reports from Executive

i. Chair

- (1) Duncan Lawson reported that he had been invited, officially as Chair of JMC, by David Willetts and Nick Gibb to a series of meetings on government policy in the area of STEM education, and had accepted the invitation. Members were pleased that the JMC had been invited officially. Martin Smith commented that the Chair of ACME had also been invited, and it was thought that some other organisations had been invited too. It appeared that the meetings were approximately in the nature of a replacement for the STEM High Level Strategy Group. Jane Jones commented that other work in the general area of STEM education also appeared to be in progress.
- (2) The ACME Mathematical Needs Report had been seen by JMC Executive according to the usual procedures for publication of ACME reports. Comments had been made and transmitted to ACME. Overall, the Report was a substantial and worthwhile piece of work.

ii. Secretary

Following experience with the process for election of the Honorary Treasurer (see Minute 6), which had gone well, a constitutional amendment would be brought to the November 2011 AGM.

iii. Treasurer

The desired change of bank signatories had been completed. The current financial situation was robust, with sufficient funds to operate JMC for a year should it be necessary. The Royal Society grant of £2500 for the period April 2011 to April 2012 had been received, but would be the last such grant. A formal application had been made to ACME for funding to support the JMC Executive Secretary.

iv. Chair of Nominations Committee

Nothing to report.

v. Venue for JMC meetings from February 2012

In the light of the termination of the Royal Society grant, the Executive had had no option but to consider alternative venues for JMC meetings. The February 2012 meeting fell within the period of the last grant and would therefore be held at the Royal Society. Subsequent meetings would be held at the Royal Statistical Society [note: the Hardy Room at the London Mathematical Society is not sufficiently large to accommodate JMC], except that it was hoped that the AGM and November Council meeting could continue to be held at the Royal Society.

- 8 JMC Handbook** *Paper JMC-2011-June-JMC_Handbook*
[paper by Executive Secretary, intended as a guide to JMC for the information of representatives]
 This was well received and adopted subject to some editorial points. David Martin emphasised that it was an on-going document and would be updated from time to time as necessary.
 Duncan Lawson noted that a key point in it was that representatives should ensure a good two-way flow of information between JMC and their organisations.
- 9 JMC International Representative**
 Ros Sutherland commented on ICME 12 which was planned for South Korea from 8 to 15 July 2012. There had been a coordinating presence and stall organised by NCETM in Mexico in 2008; it was unlikely that this could be repeated as such, but some form of replication would be good. In the meantime, her agenda was to seek funding support and set up an application procedure for individuals who wanted support. General discussion ensued on the importance of the availability of support and that any information should be widely disseminated.
 She added that she still intended to pursue the intended one-day meeting of interested parties identifying key impact messages of international studies, probably in the early autumn. David Martin commented that people wishing to attend should seek support from their own organisations. John Marriott drew attention to the New Zealand curriculum in mathematics and statistics and suggested that it should be included in the discussions at the meeting.
- 10 UK Representative to ICMI**
 Paul Andrews was not present so there was no report.
- 11 BCME 8 (to be held in 2014)**
 Bill Richardson had nothing new to report. It was reaffirmed that BCME was likely to be in mid-April 2014, almost certainly at Nottingham.
- 12 Working Groups** **i. ICT and Mathematics**
Paper:
JMC-2011-June-Digital_technologies_working_group_report_Executive_Summary
 Ros Sutherland emphasised that this paper was intended as a final or near-final draft of the Executive Summary of the Working Group's report. Comments on an earlier draft from JMC Executive had been valued and further comments from JMC were welcome.
 The key point was that digital technologies were an integral part of the work of mathematicians and scientists, but were still widely underused in classrooms.

Several members commented on the paper. Jane Jones asked for clarity on who the intended audience was (primarily policy makers). John Harris indicated that he would consult employer groups through the Sector Skills Council.

It was agreed that any further comments should be sent to Ros Sutherland within the next week.

ii. Primary

Lynn Churchman circulated a paper *adopted as JMC-2011-June-PrimaryWG*.

Progress has been limited to "desk" activity and email discussion due to the absence of funding for meetings. She was concerned that it was difficult for practising teachers to appreciate the current availability of CPD opportunities, especially with reduction in size of Local Authority mathematics teams. Comments and further ideas from JMC would be welcome.

Duncan Lawson queried how much funding was being sought. Lynne McClure commented that work would be done commensurate with whatever funding might be obtained. Ros Sutherland commented that the ICT and Mathematics working group had only funded travel to meetings (meetings had kindly been hosted free of charge); time spent on preparing the report, although a very large commitment, had not been funded, though she hoped that special funding for publication of the Executive Summary might be forthcoming.

13 Report from ACME *Paper JMC-2011-June-ACME*

Lynne McClure elaborated on some points in the report, especially

- item 1 [ACME membership], that the recent open call for two new members had now closed. According to the usual procedures, JMC Executive would be represented on the appointment panel
- item 2 [ACME Chair], that Professor Dame Julia Higgins would be completing her term in September 2011 and discussions were in hand to find a new Chair
- item 3 [ACME Secretariat], that applications for the post of ACME Head of Secretariat had now closed
- item 4 [ACME Outer Circle], that there would shortly be an open call for new members of the Outer Circle
- item 5 [post-evaluation action plan], that this was available on the ACME website
- item 6 [primary arithmetic], that a robust meeting with Nick Gibb had been held the previous day
- item 8 [with reference to the National Curriculum review], that Jack Abramsky and Anne Watson had been appointed to the mathematics review group.

Note from JMC Honorary Secretary. The ACME 2011 Conference Summary Report is available from the "Latest News" section of the ACME website home page, <http://www.acme-uk.org>.

- 14 Report from NCETM** *Paper JMC-2011-June-NCETM*
- The paper was received. Celia Hoyles was not present and it had not been possible to send an alternate due to an unavoidable clash of meetings, so there was no further discussion.
- 15 Higher Education** Elizabeth Winstanley reported verbally, noting that the Higher Education White Paper was awaited.
- Members asked for clarity as to who the current representative of HoDoMS was. Duncan Lawson said he would look into this.
- 16 Teacher Education** *Papers JMC-2011-June-AMET*
- Jenni Back commented that the situation with regard to teacher education was extremely uncertain. This referred both to institution allocations and to student applications. On-going issues also remained in respect of the redeployment of non-mathematicians into mathematics teacher education.
- Support was sought for a letter of concern from JMC; Duncan Lawson offered to liaise outside the meeting over this.
- 17 Operational Research** Nothing to report.
- 18 Update on current developments**
- i. DfES (Wales) [formerly DCELLS]**
- Paper JMC-2011-June-DfES_(Wales)*
- Tony Holloway reiterated that this would be his last JMC meeting (see Minute 3).
- He commented on the increased emphasis being given to literacy and numeracy across the curriculum in Wales.
- ii. Northern Ireland**
- Paper JMC-2011-June-NI*
- Nick Todd highlighted items in his report, especially that the Numeracy Strategy had now been published and had ambitious targets.

iii. Ofsted

Jane Jones circulated a paper *adopted as JMC-2011-June-Ofsted*. She highlighted several items, particularly that restructuring was in hand and that a new evaluation strategy was being piloted.

iv. TDA

Angela Mabee added to comments in the AMET report (see Minute 16). Although applications, overall, were down, they were very similar to what they had been in 2010; HEIs were confident of filling their places. Further, it appeared that the quality of mathematics applicants, as measured by class of first degree, was good.

19 Reports from meetings

Nothing to report.

20 Paper on 16–19 funding for England [Peter Thomas attended to present this item]

Paper JMC-2011-June-Paper_on_16-19_funding

This paper had been prepared by Fiona Allan, Mark Kent, Charlie Stripp and Peter Thomas (Richard Browne had deputised for Charlie Stripp at some points). It (in an earlier version) had been endorsed by the IMA, MA and MEI, and was under consideration for endorsement by the LMS. JMC was asked to receive the paper for information and to consider endorsing it and recommending it to member organisations with a view to their considering possible action. It was suggested that JMC might also wish to express its concern directly to the DfE and to ensure it responded to any consultation that might take place as part of this summer's funding review.

The paper highlighted many funding issues that already existed and were getting worse. There were particularly serious potential problems for funding provision of Further Mathematics. The general move from activity-based funding to programme-based funding might have many deleterious unintended consequences. A government review of funding was taking place this summer. Peter Thomas therefore suggested that it was particularly timely for JMC and individual organisations to become aware of developments and to involve themselves in debates.

Elizabeth Winstanley asked whether there had been communication with other subjects, especially STEM subjects. Peter Thomas stated that there had not, as the document had not been prepared by a formally constituted group. Perhaps this was something that JMC might usefully take up. David Martin offered to follow this up through Martin Smith.

Charlie Stripp emphasised the urgent problem around the reduction of "entitlement" funding which had in practice sometimes been used to support provision of Further Mathematics. He commented that JMC could usefully

highlight the collateral damage to Further Mathematics, and thus to Mathematics itself, which was probably not what the government intended.

Martin Smith commented that there had been a letter from ACME to BIS but without obvious good effect as yet.

Resolved: that JMC expresses its concern about current arrangements for 16–19 funding in England

Resolved: that JMC endorses paper *JMC-2011-June-Paper_on_16-19_funding*

Resolved: that an appropriate letter (or letters) will be written, and that consideration will be given to using a new channel of communication with government through the IMA

21 Discussion on National Numeracy Trust

Paper JMC-2011-June-NationalNumeracy.org_concept_paper

Lynn Churchman commented that it looked as if funding had been secured. JMC needed to decide whether and how to interact with the new organisation. Little was yet known about it, such as who would be serving on its Board.

Members had many reservations, including that the National Numeracy Trust might become the main source of information about numeracy issues rather than say JMC or ACME. It was also commented that the targets for measuring success seemed somewhat loosely defined.

Roeland Beerten commented that the Trust's aims seemed very close to the Royal Statistical Society's 10-year "getstats" campaign, and wondered whether the Trust had yet investigated what other organisations were doing. Lynn Churchman commented that this should be an early task of the Trust.

22 Discussion on National Curriculum Review – to receive any news updates, and to note and compare responses from member organisations

This item was not taken in detail due to shortage of time. Martin Smith noted that there was a lot of common ground in the submissions that had had been made from mathematics organisations.

For convenience, several web links to responses that are quoted in the agenda are repeated here. They are taken from ACME Bulletin No 11. Some of these responses are by letter; others use the official response form which is lengthy. It was noted that ATM had also made a submission.

ACME:

<http://www.acme-uk.org/media/7234/acme%20ncr%20response%20final.pdf>

Education for Engineering (E4E):

http://www.educationforengineering.org.uk/policy/pdfs/E4E_NC_Review.pdf

IMA:

http://ima.org.uk/db/documents/response_to_the_nat_curriculum_review.pdf

LMS:

http://www.lms.ac.uk/sites/default/files/Mathematics/policy_responses/National_Curriculum_Review_response.pdf

MA:
<http://m-a.org.uk/resources/MA%20Response%20to%20NC%20Review%20%20for%20We%20Say.pdf>

MEI:
http://mei.org.uk/files/pdf/NC_review_response_form_MEIfinal.pdf

RSS:
http://www.rss.org.uk/uploadedfiles/userfiles/files/Education_NC_Review_2011_response.pdf

SCORE:
<http://www.score-education.org/media/7650/scorencevidence.pdf>

- 23 Any other business** None.
- 24 Dates of future meetings** Tuesday 8 November 2011 (immediately following the JMC AGM)
Tuesday 28 February 2012
Both the above at the Royal Society.

At the Royal Statistical Society:
Tuesday 12 June 2012.
[Note: this meeting is one week later than normal to avoid the public holiday that has been called to celebrate the Queen's Diamond Jubilee.]

DISCUSSION ITEMS

Primas

Introduced by Malcolm Swan and Geoffrey Wake

[See <http://www.primas-project.eu>.]

Malcolm Swan and Geoffrey Wake explained that Primas was an acronym for "Promoting inquiry-based learning in mathematics and science", a project at primary and secondary levels running across Europe from 2010 to 2013. In England, particular importance was being attached to professional development materials and materials to support classroom practitioners, to dissemination activities and to a policy strand.

A short video was shown. The main characteristics of inquiry-based learning were set out and discussed; the key processes seemed largely similar across mathematics and science. Emphasis was given to the importance of professional development for teachers, not just the creation of materials for classes, important though that was.

The presentation was received with interest and general discussion ensued.

"Stop teaching calculating; start teaching math"

Introduced by Conrad Wolfram

[See <http://www.computerbasedmath.org/>.]

Conrad Wolfram started with the thesis that the curriculum was computer-assisted but not computer-based, and that there was a need to match the real world and move towards the latter. Professional mathematical work was nowadays very largely computer-based, but this made professional practice in mathematics more challenging, not less, because it was now possible to model much more complex situations and attack much more complicated problems than previously. Mathematics was a massively growing subject, but had to be seen as very much more than carrying out calculations.

The presentation was well received. Members noted that the points made chimed well with the work of the Digital Technologies Working Group (Minute 12(i)) and the ACME Mathematical Needs Project (Minutes 7(i)(2) and 13). A lively discussion ensued, with special focus on how fundamental reform could be brought about.