

JMC**Joint Mathematical Council
of the United Kingdom****Minutes of the JMC Council meeting
held at the Royal Statistical Society
on Tuesday 6 November 2012****Present***Officers*

Tim Rowland	Chair
Gerald Goodall	Honorary Secretary
Paul Harris	Honorary Treasurer

Executive Secretary

David Martin	Executive Secretary
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Representatives of Participating Societies

Jenni Back	Association of Mathematics Education Teachers
Sue Pope	Association of Teachers of Mathematics
June Barrow-Green	British Society for the History of Mathematics
John Monaghan	British Society for Research into Learning Mathematics
---	Conference of Heads of Departments of Mathematical Sciences
Colin Campbell	Edinburgh Mathematical Society
Chris Sangwin	Institute of Mathematics and its Applications
Tony Gardiner	London Mathematical Society
Lynne McClure	Mathematical Association
Charlie Stripp	Mathematics in Education and Industry
Sally Barton	National Association for Numeracy and Mathematics in Colleges
---	National Association of Mathematics Advisors
Steve Hewson	NRICH representing the Millennium Mathematics Project
Lydia Showan	National STEM Centre
Louise Orpin	Operational Research Society
Roeland Beerten *	Royal Statistical Society
Stephen Williamson	Wales Institute of Mathematical and Computational Sciences

* Roeland Beerten was delayed due to attending another meeting. The Royal Statistical Society was represented by Debra Hurcomb until he arrived.

Co-opted members

Ros Sutherland JMC International Representative
--- International Commission on Mathematical Instruction
Duncan Lawson Immediate Past Chair

Observers

Lynne McClure Advisory Committee on Mathematics Education [also Rosalind Mist as
ACME Head of Secretariat]
Jeff Evans Adults Learning Mathematics
--- Department for Education
--- Department for Education and Skills [Wales]
Nick Todd Department of Education [Northern Ireland]
Fiona Robertson Education Scotland
Mary McAlinden Higher Education Academy
Celia Hoyles National Centre for Excellence in the Teaching of Mathematics
Bethany Hughes Office of Qualifications and Examinations Regulation
Jane Jones Office for Standards in Education
Yasmin Hossain Royal Society
--- School Mathematics Project
--- Sector Skills Council for science, engineering and manufacturing
technologies in the UK
Bill Richardson United Kingdom Mathematics Trust

Also present

James O'Donoghue and Pete Grady, Teaching Agency, initially as guests (see Minutes 3 and 7).

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- 1 Introduction of new Chair** Tim Rowland (Professor Tim Rowland, University of East Anglia and University of Cambridge) introduced himself briefly.
 - 2 Apologies** David Arrowsmith (HoDoMS), Alison Clark-Wilson (MA), Lynn Churchman (NAMA), Dylan Jones (DfES (Wales)), Janet Holloway (Ofqual), John Harris (SEMTA), Paul Scruton (SMP).
 - 3 Welcome to new representatives, alternates and others attending** New Chair: Tim Rowland.
Immediate Past Chair, welcomed as co-opted member: Duncan Lawson.

New representatives: Chris Sangwin (IMA), Chris Budd (ICMI, not present), Richard Page (DfE, not present).

Alternates: Lynne McClure (MA), Steve Hewson (NRICH), Bethany Hughes (Ofqual).

Guests: James O'Donoghue and Pete Grady, Teaching Agency (TA), initially as Guests for this meeting. The TA was admitted to JMC as an Observing Society later (see Minute 7).

In addition, Nicola Berkley (on behalf of ACME Secretariat) was welcomed for the afternoon ACME discussion; and Stefano Pozzi and Dawn Bogunovic (DfE) were welcomed for the afternoon discussion on National Curriculum review and Key Stage 4 qualification reform.

- 4 Appreciation of departing representatives** Nigel Steele (IMA), Ian Brydon (DfE). Especially warm appreciation was expressed to Nigel Steele for his many years service on JMC and on its Executive.
- 5 Minutes of the meeting of Tuesday 12 June 2012** *Paper JMC-2012-June-Minutes*
Accepted subject to a small correction in Minute 14(ii) to clarify the situation in Scotland regarding early entry for examinations. [**Secretarial note.** The corrected Minute is shown in the copy of record held in the JMC documents archive.]
- 6 Consideration of any matters arising from the Minutes that do not appear on the main agenda**
1. Attention was drawn to the change of the meeting date in June 2013 (as noted in Minute 20 below).
2. There were no other matters arising under this agenda item.
- 7 Teaching Agency (TA)** James O'Donoghue and Pete Grady withdrew for this item.

Honorary Secretary formally proposed, on behalf of Executive, that the Teaching Agency (TA) within the DfE be admitted to JMC as an Observing Society, so as to maintain the long-standing relationship with the former TDA. This was **agreed** (no votes against, one formal abstention).
- 8 Reports from JMC Executive**
i. Chair

Duncan Lawson, as Immediate Past Chair, reported that he had attended a meeting of the Joint BIS/DfE STEM Ministerial Advisory Group on 24 October 2012 and gave a brief summary of the meeting. He had also provided a more detailed written report for JMC, which is attached as **Appendix 1** to these Minutes.

Lynne McClure asked whether the point about lecturers in mathematics in FE

not necessarily being qualified in mathematics had been discussed. Duncan Lawson replied that this had not been brought up.

ii. Honorary Secretary

Honorary Secretary reported that JMC had officially received a copy of a letter dated 24 October 2012 from ATM to the Secretary of State for Education raising, in strong and highly critical terms, issues surrounding the development and accreditation of the Edexcel Level 1/Level 2 Certificate in Mathematics (KMA0). A copy of this letter is held in the JMC archive. Honorary Secretary had confirmed with Sue Pope (ATM representative on JMC) that the letter should be circulated to all JMC representatives, and this had been done on 25 October.

Sue Pope highlighted the unsatisfactory situation, as set out in the letter, and stated that she would welcome JMC's support for the letter.

The Chair was reluctant to open a formal JMC discussion given the fairly short notice since the circulation of the letter, but recognised that individual Societies might wish to make their own comments. It was confirmed that ACME had also received a copy of the letter and had discussed it.

Members felt that further discussion might be appropriate at the February 2013 meeting of JMC.

iii. Honorary Treasurer

Honorary Treasurer had nothing to report beyond the discussion that had occurred in the AGM.

v. Chair of Nominations Committee

Sally Barton reported that Tim Rowland would henceforth sit on the NCETM Advisory Group in place of Duncan Lawson.

She also advised that it was likely that the Nominations Committee would be called on to recommend further nominations to a variety of other committees and organisations in the coming months, so there would be new opportunities for members and others who wished to become further involved in work of this kind.

9 JMC International Representative

Ros Sutherland had circulated a late paper giving a report by her on ICME 12 and carrying brief reports from the delegates who had been supported by bursaries. This paper was welcomed. A copy is held in the JMC archive as *JMC-2012-Post_agenda-Nov-ICME*.

Celia Hoyles enquired whether this paper could be a basis for a report on ICME to BCME, and this was answered in the affirmative.

Bill Richardson was disappointed to note that so few UK delegates had attended ICME 12. He felt that ICME was becoming more regional and less truly international. However, the next ICME, in 2016, was to be in Germany and it was hoped that this would be more convenient for UK delegates.

Tony Gardiner commented that there had been procedural issues surrounding the award of bursaries. Tim Rowland confirmed that there was considerable dissatisfaction; this had been discussed by Executive, which would be pursuing the matter.

10 UK Representative to ICMI In the absence of Chris Budd, there was no report. It was in any case not expected that there would be much business at this time. It was hoped that he would be able to attend JMC at least sometimes, remaining in email contact as necessary.

11 BCME 8 (to be held 14-17 April 2014) *Paper JMC-2012-Nov-BCME*

The paper was accepted.

Bill Richardson highlighted the impressive key speakers who had been engaged, and confirmed that planning for BCME was going ahead efficiently. He also stated that he had been instructed to invite the new Chair of JMC to the next round of planning meetings.

12 Report from Primary Working Group

In the absence of Lynn Churchman (Chair of the Group), Honorary Secretary opened the discussion. A very recent email from Lynn had explained that the Group had lost momentum, partly because some members had had to withdraw due to pressure of work and partly because it had proved difficult to keep track of very rapid changes in the area. A way to bring the Group's work to some form of conclusion was now necessary.

Members recalled that one of the original reasons for setting up the Group was that much primary mathematics was being taught by non-specialists and the availability of good CPD support was therefore important. A survey of what CPD was available would thus be very helpful, so there would be value in providing a summary of what the Group had found, perhaps as a pointer to other work, properly funded, that might be able to take matters forward.

Celia Hoyles agreed that the time was very opportune for a report on CPD in primary mathematics. Rosalind Mist added that ACME was anticipating starting a major project in this general area soon, and a summary of findings of the Group would be very helpful material to inform that work.

Executive Secretary stated that these matters had been discussed by JMC Executive and he would be liaising with Lynn Churchman accordingly.

13 Report on JMC involvement with meetings regarding Mathematics Teacher Training Scholarships

Paper JMC-2012-Nov-JMC-and_Teacher_Training_Scholarships

Duncan Lawson introduced the paper on behalf of the 2011–2012 JMC Executive. It was pointed out that, in line with the previous meeting of JMC (see Minute 6(iv) of that meeting), neither Executive Secretary nor Nigel Steele had been involved in the preparation of the paper. Duncan Lawson further emphasised that this was purely a procedural paper regarding the role played by JMC Executive in meetings held in March and April 2012; it did not address the substantive matters relating to the scholarships.

The paper pointed out (its paragraph 2.2) that JMC at its meeting in February 2012 had expressed a number of different opinions but felt that the matter of scholarships should be pursued further. JMC Executive Secretary had therefore facilitated these meetings. However, no "JMC position" had been developed on the substantive matter and therefore no decisions on behalf of JMC could be taken.

Tony Gardiner took issue with the implication that there had been considerable disagreement between the mathematics community organisations that had been represented at the meetings. He felt instead that there had been considerable agreement in a particular direction, but that JMC had appeared to lead in another direction. His view was that JMC's role was to facilitate but that, in this instance, JMC had gone beyond this and sought to lead. Duncan Lawson declined to comment further on these claims, beyond what was already written in the paper. No-one else made any comments on this issue.

Sue Pope drew attention to a late paper from AMET on the substantive matter, which would be discussed later in the meeting (see Minute 17(ii)). This paper set out reasons why the current direction of work around the scholarships was unsatisfactory. Tim Rowland recognised this, but added that the AMET paper was nevertheless seeking to find a best way forward. Further substantive discussion was deferred until item 17(ii).

14 Reports received from JMC Organisations

i. Education Scotland

Paper JMC-2012-Nov-Education_Scotland_The_Sciences_3-18

The paper was received. Fiona Robertson also drew attention to the Scottish Survey of Literacy and Numeracy Resource, published on the Education Scotland website on 16 October 2012:

<http://www.educationscotland.gov.uk/resources/s/scottishsurveyofliteracyandnumeracy/numeracy.asp>

ii. Higher Education Academy

Paper JMC-2012-Nov-HEA

The paper was received.

iii. NRICH representing the Millennium Mathematics Project

Paper JMC-2012-Nov-NRICH

The paper was received. Steve Hewson mentioned that there was further work that would soon be available on the website.

15 Report from ACME *Paper JMC-2012-Nov-ACME*

The paper was received. It was mentioned that the fields of candidates for appointment to ACME and to the Outer Circle had been very strong. Lynne McClure would be remaining on ACME until September 2013.

There had been much interest in the responses from the community to the National Curriculum review.

Rosalind Mist mentioned that ACME would shortly be having a meeting with all three of the Awarding Bodies in England regarding developing the mathematics part of the EBacc. ACME had not been willing to meet any of the Awarding Bodies individually in this regard.

The date of the ACME Conference for 2013 had been fixed as 9 July.

16 Report from NCETM *Paper JMC-2012-Nov-NCETM*

The paper was received. Celia Hoyles highlighted the appointment of two new members of staff (Debbie Morgan and John Westwell). She also drew attention to the continuing availability of Collaborative Teacher Projects. Special mention was also made of the Conference on Digital Technologies in Mathematics Education to be held on 27 February 2013.

Finally, she affirmed that she would be standing down as Director of NCETM early in 2013. An advertisement for her successor would appear shortly [**post-meeting note:** this advertisement was circulated to all JMC organisations on 9 November 2012]. She thanked all present for the goodwill and support that NCETM had enjoyed, and was in turn warmly thanked for and congratulated on all her work for NCETM.

17 Update on current developments **i. Northern Ireland**

Paper JMC-2012-Nov-NI

The paper was received. There was again considerable interest in the emerging differences between the situations in Northern Ireland and in England. It was not easy to see where this would lead as the planned changes in England were developing more and more of their own momentum.

ii. Teaching Agency

Paper JMC-2012-Nov-TA

Further to this paper, James O'Donoghue confirmed that final ITT recruitment figures were expected soon, and he would pass this information on when it was available. [**Post-meeting note.** The information was circulated by email on 20 November 2012. For a Press Notice, see

<http://www.education.gov.uk/inthenews/inthenews/a00217134/teaching-agency-census-> .

A more detailed breakdown of figures is in the ITT Census 2012 Summary, at <http://www.education.gov.uk/rsgateway/DB/STA/t001101/ittcensusv2.pdf>.]

Members also received a late paper from AMET giving its position on the matter of Mathematics Teacher Training Scholarships. A copy is held in the JMC archive as *JMC-2012-Post_agenda-Nov-AMET_re-Teacher_Training_Scholarships*.

The papers were welcomed but there was insufficient time for widespread discussion. Tim Rowland pointed out the AMET paper sought, among other matters, greater coordination with ITE selection procedures. Bill Richardson commented that the most highly qualified mathematics graduates were not necessarily the best prospective teachers; however, James O'Donoghue wondered whether there were any "hard" data to support this, and Colin Campbell commented that mathematical knowledge should be nourished. More generally, Charlie Stripp commented that what really mattered was raising the status of the teaching profession, and Sally Barton that long-term retention seemed an even more important issue than initial recruitment.

Tony Gardiner was concerned at the increased focus on learned societies and commented that teachers associations must not be overlooked.

18 Reports from meetings

- (i) A further meeting of the OCR Mathematics Consultative Forum had been held on 27 September 2012. Many JMC organisations had been represented, as was JMC corporately in the person of Executive Secretary who would circulate the Minutes of the meeting when they were received.
- (ii) See Minute 8(i) above and Appendix 1 regarding a recent meeting of the Joint BIS/DfE STEM Ministerial Advisory Group.
- (iii) There was nothing further to report.

19 Any other business

None.

20 Dates of future meetings

All meetings will be at the Royal Statistical Society, 11 00 start, unless and until there is an announcement to the contrary.

Tuesday 26 February 2013

Thursday 13 June 2013 (confirmed as a **change** from the previously announced date of 11 June)

Tuesday 5 November 2013 (immediately following the JMC AGM)

DISCUSSION ITEMS

Discussion led by ACME (Lynne McClure) on supporting able young mathematicians 5–16

Rosalind Mist had provided the following introduction to this discussion.

ACME had a session on supporting able mathematicians at its conference earlier this year. As a result of this, the committee has been developing a draft policy paper which we will present to JMC alongside some discussion questions.

The draft policy paper had been circulated as a late paper. A copy is held in the JMC archive as *JMC-2012-Post_agenda-Nov-ACME_discussion_paper*.

Lynne McClure highlighted salient points from the paper and invited discussion on key issues:

- Does the paper make the case for urgency?
- Has the paper identified the right principles?
- Is the suggested solution workable?
- How might a "* curriculum" [this concept is introduced in the paper] be described?
- Why and how is it different from a "normal" curriculum?
- How should it be assessed and/or included in accountability?

The discussion was conducted initially in small groups, followed by general feedback and open discussion. Many points were made; detailed notes were taken by ACME colleagues to inform further development of the paper.

Presentation and discussion led by Stefano Pozzi and Dawn Bogunovic (DfE): The National Curriculum and qualification reform – update

Stefano Pozzi talked to a summary set of PowerPoint slides that were subsequently circulated. A copy is held in the JMC archive as *JMC-2012-Nov-Stefano_Pozzi_presentation_on_NC_review_and_KS4_qualifications_reform*.

In respect of the National Curriculum review, there would be formal consultation on the entire NC for England, for all subjects, with the intention of finalising the curriculum by September 2013 for first teaching from September 2014.

In respect of the English Baccalaureate (EBacc), many points summarised on the PowerPoint slides were emphasised and explained further. The successful Awarding Organisation in the competition for each subject was expected to be announced in January 2014, with first teaching from September 2015.

Discussion covered many matters including: designing mathematics qualifications without tiers; single-versus two-qualification models; post-16 pathways and increasing post-16 participation; timescales,

including piloting; the five-year cycle for Awarding Organisation competitions, and institutional capacity; and the general relationship between the curriculum and qualifications.

Email addresses given for further questions were:

Key Stage 4 qualifications reform:
dawn.bogunovic@education.gsi.gov.uk

National Curriculum review – secondary maths:
nicola.edwards@education.gsi.gov.uk

APPENDIX 1

Report by Duncan Lawson dated 25 October 2012

Joint BIS/DfE STEM Ministerial Advisory Group Meeting

24 October 2012

Introduction

Although this is a Ministerial Advisory Group, at 3.00pm when the meeting commenced no ministers were present. Following the recent Government re-shuffle, Liz Truss has replaced Nick Gibb as the DfE minister on the group. One of her officials apologised for her absence due to other unavoidable commitments. David Willetts' officials also apologised for his absence but could at least say that he would be joining the meeting shortly after 4.00pm (he was giving evidence to a select committee at 3.00pm and then there was a vote in the Commons at 4.00pm). The Agenda contained three substantive items: GCSE reform, A level reform and Science and Society Review. The first two were highly controversial and generated much discussion and criticism. Whilst suggestions were made to improve the discussion document, the third was not controversial. There were no ministers present for the first two items. David Willetts arrived at the very end of the A level discussion and then chaired the meeting for the third item.

GCSE Reform

A DfE official outlined the Government's motivation in reforming GCSEs:

1. Ofqual has identified that standards in GCSEs have declined in recent years;
2. GCSEs are failing lower attainers;
3. The tiered nature of GCSE papers places a cap on the attainment of some students;
4. The system has created perverse incentives through performance tables and the existence of multiple Awarding Organisations (AOs).

The Government's solution is a new set of qualifications in English Baccalaureate subjects (maths, English, science, history, geography, languages). There will be competition between AOs to deliver one qualification (or suite of qualifications) per subject. This will remove the "race to the bottom", where schools opt for the AO whose qualification in a particular subject is perceived to be the easiest.

The new qualifications must:

- set high expectations of performance;
- have an accurate grading system;
- remove (or at least minimise) internal assessment;
- be designed to eliminate "teaching to the test";
- make little or no use of "exam aids" (eg calculators and periodic table);
- have a world-class syllabus – comparable to those in high-performing jurisdictions;
- not cap the aspirations or achievements of lower achievers.

The competition for English, maths and science will take place next year with the winner of each competition being announced in January 2014 and first teaching of the new qualifications will begin in September 2015. The other English Baccalaureate subjects will follow twelve months later. The process will begin with AOs submitting their proposals to Ofqual for approval as meeting the appropriate criteria. Following this, all those that receive Ofqual's approval will go forward for consideration by a panel of experts – this panel will select the one winner.

A consultation on these proposals is open until 10 December 2012 and this can be accessed at <https://www.education.gov.uk/aboutdfe/departmentalinfromation/consultations/a00213902/reforming-key-stage-4-qualifications>. There has been a slow response to this consultation so far.

There will also be a consultation on Accountability soon, as it is recognised that performance tables are skewing the system. However, the timing of this has not yet been established.

The discussion was almost universally critical of the process. A number of the criticisms are outlined below.

1. Learned societies have been put in a difficult position by this process. They cannot help one AO in preference to another, which limits their involvement in the design phase.
2. There are serious concerns about how removing internal assessment will affect the amount of practical/laboratory work that is assessed – and if it is not assessed then it will not be taught.
3. The removal of tiering will most likely lead to the qualification not being accessible to at least 50% of the cohort. There were serious doubts expressed that a single assessment could provide an opportunity for lower attainers to demonstrate what they can do whilst at the same time providing stretch and challenge to allow differentiation between good and excellent candidates.
4. There are concerns that the parallel developments of replacements for GCSE and new A levels will lead to a gap between the two qualifications.

The point was made that as long as schools are held accountable by performance on these qualifications then they will "teach to the test" to ensure that their students pass. The nature of the assessments is therefore crucial. DfE were clear that sample assessment materials are part of the package that is to be submitted to Ofqual for approval.

A level reform

The Ofqual consultation closed in September and Ofqual is pulling together the responses and will publish a report soon.

From a DfE perspective, there are two big questions remaining:

1. How best to secure the engagement of HE in the process (this is a declared Government objective but one that DfE is not to manage);
2. Future structure of the qualifications, in particular the place of modules, the role of resits, the position of AS levels in terms of the overall A level qualification.

The Government is clear that the main purpose of A levels is for progression to higher education. This is why they are committed to the involvement of HE in the development of the new A levels. However, Government will not determine the method by which higher education is involved.

UUK has been in discussion with DfE. UUK's position is that A levels are not solely for progression to HE; it is just as important that they prepare students for work. They are willing to be involved in the development of the new A levels provided that employers' representatives are too.

Several learned societies expressed the view that the formation of a National Subject Committee would be an appropriate way of providing both HE and professional body involvement. However, there has been a reluctance to proceed with the formation of such groups as it was not clear that they would become a recognised part of the process. They were looking for DfE to take a lead on this. DfE maintained the position that they would not (indeed had been instructed that they must not) do this. When pressed about who owned the process, the reply was "universities". When pressed further about what this meant, the reply was that it was for universities to decide. DfE did however acknowledge that it had had discussions with both the Russell Group and 94 Group during which the mission groups had expressed willingness to be involved but not in an ad hoc process.

Fears were again expressed that there was no mechanism for ensuring a smooth transition between the replacement to GCSEs and the new A levels. As AOs do not know which qualification will win the competition to be the replacement to GCSE then it is impossible to design an A level to follow on from it. There was also strong opposition to the ill-defined nature of the process.

My interpretation of this is that the Government is maintaining the position that A levels are primarily for progression to HE. It is therefore incumbent on HE to make clear what it wants from A levels. But Government is not going to dictate how HE does this (this will mean it cannot be criticised for setting up an inappropriate/unrepresentative consultation structure). However, Ofqual will not approve qualification proposals unless they can clearly demonstrate that HE is behind the proposal and in this context, "behind the proposal" must be more than an AO consulting a few HE academics (who it paid) but must be wider ranging (including support from leading research universities). I think that DfE would welcome the establishment of National Subject Committees but most certainly is not going to set up such groups.

David Willets arrived at this point, just as the discussion was being brought to a close. The DfE lead was Anna Paige who said that whilst she and her team will not be involved in the setting up of National Subject Committees or any other grouping, they are willing to act as a broker and establish links between learned societies and mission groups.

Science and Society Review

BIS is required to account for its spending under the heading of Science and Society. A document outlining the vision and objectives of the programme and criteria for use of the funding had been previously circulated. In the discussion a number of suggested amendments to the document were made and these were largely accepted – this item was almost entirely uncontroversial, in contrast to the previous two items.

Duncan Lawson
25 October 2012