

## Joint Mathematical Council of the United Kingdom: Council

### Minutes of the meeting held at the Royal Statistical Society on Tuesday 11 November 2014

#### Present

##### *Officers*

Chair	Tim Rowland
Honorary Secretary	Peter Thomas
Honorary Treasurer	Paul Harris

##### *Representatives of Participating Societies*

Association of Mathematics Education Teachers	Ros Hyde
Association of Teachers of Mathematics	Sue Pope
British Society for the History of Mathematics	June Barrow-Green
British Society for Research into Learning Mathematics	Hilary Povey
Conference of Heads of Departments of Mathematical Sciences	Catherine Hobbs
Edinburgh Mathematical Society	David Pritchard
Institute of Mathematics and its Applications	Nigel Steele (deputy)
London Mathematical Society	Alice Rogers
The Mathematical Association	Peter Ransom
Mathematics in Education and Industry	Charlie Stripp
National Association for Numeracy and Mathematics in Colleges	Sally Barton
National Association of Mathematics Advisors	Alice Onion
National Numeracy	Lynn Churchman
National STEM Centre	Stephen Lyon
NRICH representing the Millennium Mathematics Project	Charlie Gilderdale
Operational Research Society	Charlene Timewell
Royal Academy of Engineering	–
Royal Statistical Society	Olivia Varley-Winter
United Kingdom Mathematics Trust (after item 3)	Bill Richardson
Wales Institute of Mathematical and Computational Sciences	–

##### *Co-opted Members*

Chair of the BCME Committee	David Martin
UK Representative to International Commission on Mathematical Instruction	–

##### *Representatives of Observing Societies*

Adults Learning Mathematics	Jeff Evans
Advisory Committee on Mathematics Education	Robert Barbour
Department for Education [England]	–
Department of Education [Northern Ireland]	Nick Todd
Education Scotland	–
Higher Education Academy	–
National Centre for Excellence in the Teaching of Mathematics	Charlie Stripp (deputy)
National College for Teaching and Leadership	James O'Donoghue
Office for Standards in Education	Jane Jones
The Office of Qualifications and Examinations Regulation	–
The Royal Society	Marie Rogerson (deputy)
School Mathematics Project	–
Sector Skills Council for science, engineering and manufacturing technologies in the UK	Elinor Wallace
United Kingdom Mathematics Trust (until item 3)	Bill Richardson

##### *Visitors*

Advisory Committee on Mathematics Education Secretariat	Niamh Mc Mahon
Department for Education and Skills [Wales]	–

#### 1 Introduction

- 1.1 **Welcome** The Chair welcomed everyone to the meeting.
- 1.2 **Practical Arrangements** The procedure for emergency evacuation was announced as laid down in the contract for the booking of the premises.
- 1.3 **Apologies for absence** The Honorary Secretary announced that apologies for absence had been received from John Craig (HEA), Jane Imrie (NCETM), David Montagu (The Royal Society), Chris

Sangwin (IMA), Olivia Varley-Winter (RSS) [for the morning session] and Stephen Williamson (WIMCS).

## **2 Minutes of the meeting held on Tuesday 17 June 2014**

2.1 **Approval** The minutes were approved.

2.2 **Matters arising not elsewhere on the agenda** None.

## **3 Application for Membership as a Participating Society from the United Kingdom Mathematics Trust**

The Chair outlined the procedure for consideration of an application from an organisation to become a Participating Society and invited Bill Richardson to speak. Bill Richardson said that the UKMT had been an Observing Society for at least five years and its yearbooks had been made available each year so most members would be aware of it and its work. The Chair then invited questions.

Jeff Evans asked what the UKMT did that is not done by other organisations. Bill Richardson said that it organised three mathematics competitions across the United Kingdom, these had over 600 000 participants; there were also follow-on competitions, as well as training and participation in the International Mathematical Olympiad.

The Chair asked how the UKMT's Council was constituted. Bill Richardson said that the UKMT was organised in subtrusts, including the Challenges Subtrust, the British Mathematical Olympiad Subtrust and the Team Challenges Subtrust which were represented on the UKMT's Council by their chairs and two or three other members; there were also directly elected members of the UKMT's Council and officers, currently the Chair was Dame Francis Kirwan, the Secretary was Alan Eames-Jones and the Treasurer was Adam McBride; there was a time limit of nine years on continuous service on the UKMT's Council.

There were no further questions and Bill Richardson withdrew.

The Chair said that the procedure required the Executive Committee to discuss applications in advance of them being considered by Council and that it sometimes made recommendations to Council; on this occasion the Executive Committee, having discussed the application, was recommending to Council that the application should be approved (it was of the view that if the UKMT was making an initial application for membership now then it would have been suggested that it would have been to be a Participating Society rather than an Observing Society).

Ros Hyde spoke in support of the application; she noted the size of participation in the UKMT's activities. Peter Ransom also spoke in support, mentioning the UKMT's Mathematical Circles. Nick Todd supported the application saying that the UKMT's activities were UK-wide and promoted interest in mathematics across the UK.

The matter was then put to the vote and the United Kingdom Mathematics Trust's application to become a Participating Society was approved without opposition.

Bill Richardson was then invited to re-join the meeting and was informed of the decision.

## **4 Reports from JMC Executive Committee**

### **4.1 Chair**

The Chair expressed his thanks to the outgoing members of the Executive Committee: David Arrowsmith, Sally Barton, Lynne McClure and Sue Pope.

### **4.2 Honorary Secretary**

The Honorary Secretary said that he had nothing to add to his written report.

### **4.3 Honorary Treasurer**

The Honorary Treasurer said that he had nothing to add to the report he had given at the Annual General Meeting.

## **5 ICME**

The Chair reported that the ICME Bursaries Committee would begin work in early 2015 under the leadership of Chris Budd, the UK Representative to the International Commission on Mathematical Instruction, and a representative from the JMC Executive Committee will be appointed shortly.

## **6 BCME**

### **6.1 BCME8**

The Chair introduced the report from James Nicholson which had been received in June but too late for inclusion in the papers for the Council meeting on 17 June. He said that the report described a very successful and complex event, and he thanked all those involved for the work they had put into the event. He added that the financial statement promised in the report had yet to be received. Bill Richardson said that he had supplied James Nicholson and David Martin with a summary statement of account and that he had just given a hard copy of it to the Honorary Treasurer; he said that there was an overall surplus of about £25 000. The Chair asked if the account was complete and Bill Richardson replied that he was not aware of any transactions outstanding. The Chair restated that the report from James Nicholson said that the Council would receive a financial report and it has yet to receive that financial report. Sue Pope asked that the accounts be made available to ATM and the MA.

### **6.2 BCME9**

David Martin introduced his report, saying his aim was to retain what was good but also identify what needed changing. He said that he would like to establish a reference group to act as a point of contact with JMC organisations. An early question to be settled was the date of BCME9, recent BCMEs have been during the Easter vacation; he asked whether the week after Easter in 2018 would be appropriate; no objections were raised. David Martin also drew attention to the call for applications for the positions of Secretary and Treasurer of the BCME Committee which would close on 28 November.

Sue Pope asked for clarification of the organisation of BCME9, in particular the roles of ATM and the MA. David Martin said that a memorandum of understanding between JMC, ATM and the MA was being drawn up. He said that in the past ATM and the MA had been an integral part of the organisation of the event and the intention was for this to be the case in future. In the past some things, such as printing, had been out-sourced and there was a question for the BCME Committee as to which activities should be outsourced in the future. Therefore, he was not yet in a position to say exactly what activities would be undertaken by ATM and the MA administrations.

The Chair reminded the Council of the origins of the present arrangement between JMC and ATM and the MA, and that it had made BCME viable. He also noted the role of BSRLM in organising the research strand. He further observed that ATM and the MA share with JMC the risk associated with BCME. The Chair concluded his remarks by saying that BCME is an event for the whole JMC family, all have a role and place at BCME.

Sally Barton said that with regard to out-sourcing, for matters like the website where there was not expertise in-house it was appropriate but for conference organisation as expertise was available in-house it should be used – to sustain the expertise and capacity of ATM and the MA, as we want them to work with us on BCME in future and to ensure that any money spent remains within the mathematics community, when functions are outsourced money leaves the community. Hilary Povey supported this, saying that otherwise one could have a year when ATM or the MA did not need all their staff.

The Chair drew attention to the reference group and said that each Participating Society will be asked to nominate a contact.

Bill Richardson observed that over the last two BCMEs committee members have been drawn from volunteers from the Participating Societies but there seemed to be less openness about how the new committee would be formed. Hilary Povey asked about the outcomes of the discussions about the committee structure. David Martin said that there would be a BCME Committee and three subcommittees (a Programme Subcommittee, a Venue Subcommittee and a Communications Subcommittee) with overlapping memberships; the chairs of the subcommittees would serve on the BCME Committee. Lynn Churchman asked whether the BCME Committee would have ATM and the MA representation at its core. The Chair and David Martin said that it would.

The Chair thanked David Martin for his report and said that it was as yet early days in the work to organise the next BCME.

## **7 Reports from Participating Societies**

- 7.1 Association of Mathematics Education Teachers** Ros Hyde said that, in addition to her report, recently there had been circulated a report from UUK on ITE reform and its impact on HEIs. On 10 November there had been published by the Institute for Fiscal Studies (IFS) a report on the costs and benefits of the different routes into teaching in England; it showed a remarkable variation of cost; the most expensive was the unsalaried route via School Direct which in priority subjects costs £42 000 (previously Teach First had been seen as the most expensive route); nevertheless, schools say that

the benefits of the school-based route outweigh the costs; the presence of trainees in schools has no impact on learner attainment; the report was based on a survey of schools (with a very low response rate) so is based on a small number of schools' perceptions of the costs and benefits. Ros Hyde went on to say that Andrew Carter is just finishing gathering evidence for his report commissioned by the DfE into what good practice in teacher education looks like and the report is expected in January 2015.

Alice Onion thanked Ros Hyde for her report and for its thoroughness.

James O'Donoghue said that that the IFS report was very interesting; the evidence of non-payback will have future policy implications; also, it was helpful that the report looked at the total cost to central government, not just the costs to the DfE. He went on to talk about the allocations for the coming year. The five per cent decrease in allocations masked big variations; the changes were driven by the teacher supply model used; although an extra 2000 places had been allocated to School Direct there had been bids for 24 000 places.

Ros Hyde said that for good provision to work well a provider needed to offer a range of subjects; in support of this she drew attention to Anglia Ruskin University's recent decision to withdraw from teacher education. She also said that the 32% over-allocation of places affects institutions' ability to assess their own viability. Teacher supply should be kept in mind as a possible discussion topic at a future JMC meeting.

- 7.2 **Institute of Mathematics and its Applications** Sue Pope introduced the paper on the definition of a specialist mathematics teacher; it was offered as a useful document which might help inform deliberations relating to Chartered Mathematics Teacher status and statistical monitoring. Nigel Steele said that it had already proved useful in negotiations between the IMA and Teach First regarding the qualifications of those the Teach First sends to teach mathematics. (The IMA has met with Teach First and Teach First has acknowledged there is a problem; the IMA and Teach First are to meet again.) Ros Hyde said the document would support teacher education by providing a better appreciation of what is needed.

David Pritchard asked if the definition was to be applied across the whole of the United Kingdom. Nigel Steele said that the document was written with the English system in mind. David Pritchard said that in Scotland there was a more restrictive understanding of what qualifications were suitable for a mathematics teacher and he wondered how the document would apply in Scotland. Nigel Steele said that the document could be amended in the light of practice in Scotland. Hilary Povey commented that entry into teaching was different in Scotland; it was much more demanding. Nick Todd observed that in Northern Ireland all specialist mathematics teachers were trained at Queen's University, Belfast.

James O'Donoghue encouraged the authors of the document to have discussions with the departmental analysts at the DfE to understand the implications of the definition; he said that he could assist in setting up a meeting. He also asked how the 24-week minimum had been arrived at for Subject Knowledge Enhancement courses. Sue Pope said that, in the light of experience, there needed to be a substantial amount of time, if those following this route were to have subject knowledge to match that of mathematics graduates.

Bill Richardson observed that it is possible to be qualified to teach in England yet not in Scotland and there was no top-up route available.

The Chair asked about the development of the statement. Sue Pope said that she had consulted with MMSA; an earlier version of the paper had been brought to JMC in February 2014 and comments had been invited; the revised version was now being put before JMC. The Chair asked whether JMC was being asked to adopt the document as it stood; he said that he wanted to suggest amendments. Nigel Steele agreed there should be another revision cycle. The Chair said it should be made clear to what extent the document applied across the United Kingdom. Hilary Povey said that in Scotland the GTCS demands more than is demanded here and that the comparison gave pause for thought. The Chair thanked those responsible for the paper and asked that there be one more iteration; he invited comments, especially from jurisdictions other than England.

Jane Jones said that there should be separate criteria for primary and secondary mathematics specialists. She also asked if when mathematics specialist teachers were counted whether those who met the criteria but who were not teaching mathematics would be counted.

- 7.3 **National Association of Mathematics Advisors** Alice Onion introduced her report; she emphasised its penultimate sentence which said that NAMA was 'keen to ensure that mathematics specialist PD providers have the opportunity to learn together in order to continually develop their own practice'. She pointed out that NAMA's role was to provide professional development for providers, including ensuring that the research evidence existing is made available and reaches teachers.

7.4 **NRICH representing the Millennium Mathematics Project** The report was received.

## 8 Reports from Observing Societies

### England

8.1 **Advisory Committee on Mathematics Education** Robert Barbour highlighted several matters. There had been changes to the membership of the committee with Sybil Cock and Niall MacKay completing their terms of office and Mary McAlinden joining the committee. The reduction in the size of the committee was in response to reduced funding and ACME is looking for new sources of funding; it is hopeful that it will be able to hold its conference in 2015. Several new projects are underway.

A major initiative is being undertaken on initial teacher education. The first phase is focussing on what can be learnt from high-performing jurisdictions; a discussion paper, which will seek to raise questions, will be released in January alongside the Carter Review (which was sent the initial findings in October). The second phase will lead to a policy paper on what initial teacher education should look like.

Jointly with the Royal Statistical Society, ACME is looking at the 14–19 landscape for statistics learning across subjects with particular attention to its coherence and in the light of current curricular reforms.

ACME has also developed a series of Maths Snapshots which are short briefing papers on important issues in mathematics education; they are designed particularly for non-specialist influencers of policy. Several were to be produced by the end of November with four more to be available before the General Election.

An audit of the professional development needs of teachers has yet to get off the ground.

James O'Donoghue asked if the work on initial teacher education would include settings and routes as well as content. Robert Barbour replied that the investigation was into what was effective in high-performing jurisdictions and what we could learn from them.

8.2 **National College for Teaching and Leadership** James O'Donoghue highlighted that the evaluation of the ITT Mathematics Scholarships had been incredibly positive. On Subject Knowledge Enhancement courses it was intended to publish management information and data in January 2015.

Ros Hyde drew attention to the increase in salaried routes which she characterised as training on the job; she said headteachers expect a lot for the salary but there is only a small pool of applicants who are classroom ready, yet the possibility of a salary makes other routes less attractive. James O'Donoghue said that the salaried routes exist to attract a specific market and meet their needs, for example career changers who may have heavy financial commitments.

### Northern Ireland

8.3 **Department of Education** Nick Todd observed that the divide between the Northern Irish and English education systems was widening, particularly since Mr Gove decided to go it alone with changes to examinations; CCEA is working to ensure its examinations are acceptable to English universities but meet the needs of pupils in Northern Ireland.

Robert Barbour asked whether the two Mathematics GCSEs will be similar to the Linked Pair Pilot in England. Nick Todd said they would not be linked. It is yet to be decided what they would look like as discussions between CCEA and schools are in progress and nothing had yet been submitted to DE for approval. Nevertheless, it is likely that the first GCSE would be more number-based and the second more conceptual and akin to the present GCSE in Additional Mathematics. Sally Barton asked if those involved in these matters in Northern Ireland were talking to their counterparts in Wales. Wales is to have two GCSEs. Nick Todd replied that CCEA and WJEC do have close links but there are differences between the two systems, for example Essential Skills in Northern Ireland but Key Skills in Wales, so it is a case of talking to each other rather than consulting each other.

## 9 Reports from meetings

9.1 **Joint Ministerial STEM Advisory Group: 13 October 2014** The report from Tim Rowland was received.

Alice Rogers, who was also present at the meeting, added that under AOB ALCAB's recommendation that there should be a subject committee for the mathematical sciences was raised. She said that subsequently, as a consequence of its Vision Project, The Royal Society had approached the Council for the Mathematical Sciences to take forward the idea that there should be a subject committee for mathematics and CMS had responded positively. Developments in this area should be expected.

9.2 **ACME: A Level Discussion Meeting: 28 August 2014** The report from Peter Thomas was received.

- 9.3 **AQA Stakeholder Reference Group for GCSE Mathematics Reform** Alice Rogers asked if a commercial organisation was getting free advice from the JMC. David Martin said that he was paid by AQA and there was no cost to the JMC. Lynn Churchman said that the confidentiality requirements of awarding organisations mean that by the time we find out about something it is too late. She asked whether we should input or whether we should challenge the confidentiality. The Chair said that awarding organisations should be asked about confidentiality and no representative sent if there was to be such a requirement. Charlie Stripp said that JMC representatives should not sign non-disclosure agreements. Nigel Steele warned that JMC is a valuable brand and we need to ensure there is not commercial exploitation of the JMC. Lynn Churchman said the awarding organisations had expert panels sworn to secrecy. The Chair asked Council if it would be sympathetic to the line being taken that no representative would be provided unless the representative could report back. Sally Barton said the issue had also been raised at MMSA. Charlie Stripp said representatives must report back. The Chair concluded that a consensus had been reached that the JMC should provide no representative unless that representative could report back. Jane Jones said that the JMC should write to AQA saying it was very disappointed that nothing could be shared; she was also concerned how JMC membership of a group might be used in the future and that any nominee should not be seen as a representative.
- 9.4 **Council for Subject Associations: 14 October 2014** Sue Pope expressed concern about how people became members of the Expert Advisory Group (EAG), how independent they were and how expert they were. The Chair asked Charlie Stripp (Chair of the Mathematics EAG) to respond. He said that the expert group was originally set up by the DfE to provide support for the new National Curriculum; it was now part of the Expert Subjects Advisory Groups (ESAG) with a brief to look particularly at secondary; funding came mainly from educational publishers. He said that at its last meeting the group had considered whether it wanted to continue long-term; he also said that the group was not as transparent as it ought to be. The Chair said that it just added to the number of groups commenting on mathematics. Jane Jones asked for disclosure of the terms of reference and membership of the group. Lynn Churchman asked who is sponsoring the EAG and was told ESAG, which Ros Hyde reminded the meeting was funded by publishers. Niamh Mc Mahon said that it sought to act in collaboration with the DfE. Alice Rogers pointed out that the membership of the EAG was not on the ESAG website. The Chair summarised that there were concerns about the role of the group. Lynn Churchman asked if Council was happy. The Chair repeated that there were concerns. Jane Jones said that there were questions to be asked. The Chair attempted to move to the next item on the agenda. With reference to another point in the report, Alice Onion said that NAMA was already in touch with ASPECT and ASPECT would be providing a speaker at the next NAMA conference.
- 9.5 **The Higher Education Academy: Mathematical transitions report launch: 23 June 2014** The report from Peter Thomas was received.
- 9.6 **Maths Hubs Forum:**
- 9.6.1 **18/19 June 2014** The report from Tony Cotton was received.
- 9.6.2 **15/16 October 2014** The JMC's representative, Lynne McClure, had attended the meeting. The Chair said that, as Lynne McClure was now working for Cambridge Assessment, the JMC's representation should be reconsidered.
- 9.7 **Numeracy Forum:**
- 9.7.1 **2 July 2014** The JMC's representative, Sally Barton, had attended the meeting.
- 9.7.2 **3 October 2014** The JMC's representative, Sally Barton, had been unable to attend the meeting.
- 9.8 **OCR Mathematics Consultative Forum: 9 October 2014** The report from David Martin was received.
- 10 Any other business not elsewhere on the agenda**
- 10.1 **Ofsted** Jane Jones apologised for not submitting a written report in time and gave a verbal update on the work of Ofsted. (A written version of her remarks which was submitted after the meeting can be found in Appendix 1.) She said that Ofsted's revised publishing policy had reduced the amount that it was publishing as schools have misinterpreted information as indicating normative methods; in future criteria used will be considered as training material for inspectors and so will not be published. In particular, subject criteria have been removed from the Ofsted website. All inspectors have received training in the new National Curriculum. Ofsted has been running a series of *Better mathematics* conferences around England. Also, Ofsted is proposing a new model of inspection, about which there is a public consultation, and the lead roles are being reviewed.

- 10.2 **Ofqual** Sue Pope raised the matter of the new GCSE Mathematics specifications for use in England for first examination in 2017 which have been accredited by Ofqual. She said that the Specimen Assessment Materials were not comparable; they made very different demands and this will distort the market. When representatives of the JMC met with Glenys Stacey earlier in the year they were assured that there would be a common interpretation of the Assessment Objectives and equal demand across the specifications. This had not happened and it was important that the JMC registered its disquiet. The Chair proposed, in consequence of the assurances that were given at that meeting, that the JMC should write to Ofqual. Charlie Stripp strongly supported the proposal; he said two of the three English awarding organisations for GCSE had made an effort to respect the new Assessment Objectives but the third had not; if the situation does not change then all the awarding organisations will say there is no point in playing the game for the new A Levels. The Chair proposed that a short letter be sent to Ofqual, the Honorary Secretary should produce a draft and the final wording should be agreed within the Executive Committee; this was agreed without opposition.

The Council adjourned for lunch at this point.

## 11 Discussion Item

### **ACME: International lessons and engagement on mathematics education: Maths Hubs International Programmes**

Robert Barbour introduced the session. He said that when the National Curriculum was introduced in 1987 the National Curriculum Working Group visited the Far East but they ignored what they saw. Since the publication of TIMMS and PISA and league tables (are these comparing like with like) there has been a period of trench warfare which has not affected teaching practice. Today, in 2014, there is an opportunity to learn in both directions through the teacher exchanges through the Maths Hubs.

Charlie Stripp then spoke about the primary teacher exchanges through the Maths Hubs with teachers in Shanghai which were motivated by the high performance of Shanghai in PISA. In 2013 and 2014 NCTL organised visits to Shanghai by headteachers and subject leaders; they were impressed by the mathematics but not the science. In February 2014 there was a ministerial visit to Shanghai led by Elizabeth Truss; Charlie Stripp was a member of the delegation and he said he saw some very good mathematics teaching.

He went on to ask what a mastery curriculum is, as the new National Curriculum is a mastery curriculum; he drew attention to the paper\* on mastery teaching on the NCETM website. Lessons are designed rather than planned with the aim of achieving deep conceptual and procedural knowledge

He then described primary mathematics teaching in Shanghai. Primary teachers undertake a four-year degree in teaching primary mathematics which hones their pedagogical and subject knowledge. In schools, lessons are in the mornings; in the afternoons teachers see students and mark work (something done very rapidly) with the aim of making sure gaps do not appear. Teaching is of the whole class, differentiation is by depth not acceleration. It is for deep conceptual learning; he gave examples (see the Powerpoint presentation\*) of how students learn how but also why. There is a belief that practice makes perfect, but it is intelligent practice which incorporates procedural variation rather than being mechanical repetition. There is also conceptual variation: addition and subtraction are taught together, multiplication and division are taught together.

Charlie Stripp then described the exchange scheme. In September 2014 two primary teachers from each of the lead primary schools in the Maths Hubs spent a week in Shanghai (they came back very impressed by what they saw, including the use of discussion and technology). In November 2014, 29 expert Shanghai primary mathematics teachers would come to England to teach for a month in the lead primary schools in the Maths Hubs. The English teachers will then use the Shanghai methods for the rest of the academic year. High- quality well-structured textbooks were seen as very useful, examples from books from Shanghai were shown. Those schools in which the exchange teachers are working will use translations of the Shanghai books but translations are being made of books from Singapore as they were more suited to England as teachers in Singapore are less skilled than those in Shanghai and the Singaporean books provide more support for the teacher. A project is starting in January 2015 in two other primary schools in each Maths Hub in which the translations of one of the Singaporean books (*My Pals are here* (OUP) and *Maths no Problem* (Shing Lee)) will be used.

This will allow the mastery approach to be tested in English primary schools as well as enabling professional development to be developed to support it. Charlie Stripp went on to discuss some of the barriers to mastery: the expectation of differentiation is at odds with whole-class approaches, assessment of pupil progress and the high-stakes Year 6 tests, and the lack of specialist primary mathematics teachers – there is no career route to specialise in mathematics teaching. Another issue is the tendency for English primary schools to be small. In large schools, it is easier to have a

mathematics specialist. In Shanghai classes are larger (groups of 45 are normal) and are taught in large rooms but the teachers have less contact time. There is also a need to develop a culture of the use of textbooks.

Charlie Stripp concluded his presentation by saying that all this is going to be evaluated by independent contractors engaged by the DfE.

There followed fifteen minutes of group discussion guided by the following prompts.

<p>Discussion Points</p> <p>The Implications of Current International Links</p> <ol style="list-style-type: none"><li>1. What do you see as the opportunities provided by the current international links with the maths hubs? Is there any action needed to secure these opportunities?</li><li>2. Are there any potential drawbacks? How can these be mitigated?</li><li>3. What do you see as the implications of these links for the future development of mathematics education in England?</li><li>4. Are there any further points you would like to make, or questions to Charlie Stripp?</li></ol>
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There was then a plenary session in which the following questions and points were raised.

- When do children start school in Shanghai? – Six.
- How do Shanghai teachers use marking time? How much time is spent on identifying problems? How much on feedback? – Written feedback is concise.
- Will the English teachers follow the Shanghai teachers work programme? – Shanghai teachers do not teach the whole morning, they will have two or three 35-minute or 40-minute lessons each day. This allows for professional development all the time with teacher research groups, of teachers teaching parallel classes, designing lessons together.
- How do you help primary teachers to gain the knowledge needed to teach in depth in this way?
- Textbooks are not enough, they need the right delivery.
- What is described is not scalable across the country.
- Key to success are teachers' beliefs about what they are doing when they teach mathematics.

There was also a discussion of setting and what is meant by high attainment.

At the end of the plenary session Charlie Stripp said that he would be happy to report back at the next meeting on how the initiative was developing. Robert Barbour then made some concluding remarks. The Chair thanked Robert Barbour and Charlie Stripp for the presentation and leading the discussion.

\*The PowerPoint presentation used by Charlie Stripp, *JMC presentation on China- mastery and Singapore - textbooks Maths Hubs national projects Nov 2014.ppt*, and the paper on mastery teaching, *Developing\_mastery\_in\_mathematics\_october\_2014.pd.pdf*, can be found under the topic *2014 November papers* in the [JMC Council document archive](#).

## 12 Conclusion

The Chair thanked those present for their contributions and closed the meeting.

## 13 Dates of future meetings

Tuesday 10 March 2015 (following the Special General Meeting which will start at 1100)

Tuesday 16 June 2015 (starting at 1100)

Tuesday 10 November 2015 (following the Annual General Meeting which will start at 1000)

These meetings will be held at the Royal Statistical Society.

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## APPENDIX 1

### HMI Report to JMC – Nov 2014

Ofsted's *Better mathematics* conferences continue to be very well received. More than 20 have been completed, with another 10 over the next three months. Initially, the conferences were organised by Ofsted but they are now hosted by single local authorities, or small groups of them, and in September the Yorkshire Maths Hubs ran one. Mathematics HMI lead the keynote, planning and workshop sessions. The conferences are attended by the headteacher/senior leader with the subject leader and the aim of improving teaching and leadership of mathematics.

Ofsted has stopped publishing extensive guidance on all aspects of inspection. As part of this, the subject-specific guidance for all subjects including mathematics has been removed from the website. The inspection handbooks are supplemented by a programme of training for inspectors. For instance, all schools HMI have received some training on the new national curriculum in each subject, and additional inspectors are due to receive the same soon. The links to the handbooks for the inspection of schools and initial teacher education are at the end of this update.

Mathematics continues to be a specific focus of school inspection. The foci are based on key priorities identified in the report, *Mathematics: made to measure*.

**Paragraph 55: Inspecting the teaching of mathematics<sup>1</sup>**

When evaluating the effectiveness of a school's work in mathematics through the analysis of performance data, observations in lessons and scrutiny of pupils' work, inspectors will consider:

- how well the school is identifying and tackling inconsistency in the quality of mathematics teaching between different groups of pupils, key stages, sets and classes, including those taught by non-specialist teachers of mathematics in secondary schools
- how well teaching, in the mathematics lessons observed, through discussions with pupils and scrutiny of their work and by reviewing curriculum plans:
  - ensures that pupils acquire mathematical knowledge appropriate to their age and starting points, and enables them to recall it rapidly and apply it fluently and accurately, including when calculating efficiently and in applying arithmetic algorithms
  - fosters mathematical understanding of new concepts and methods – this includes teachers' explanations and the way they require pupils to think and reason mathematically for themselves
  - enables pupils to solve a variety of mathematical problems, applying the mathematical knowledge and skills they have been taught
- how well pupils apply their mathematical knowledge and skills in other subjects in the curriculum, where appropriate.

<sup>1</sup> Please refer to *Mathematics: made to measure* (110159), Ofsted 2012; [www.ofsted.gov.uk/resources/110159](http://www.ofsted.gov.uk/resources/110159).)

A consultation, entitled *Better inspection for all*, is currently underway. It contains Ofsted's proposals for a new framework for the inspection of maintained schools, academies, further education and skills providers, non-association independent schools and registered early years settings. It closes on 5 December 2014 and can be found at this link:

Key features are:

- common judgements across all of the providers (early years settings, maintained schools and academies, non-association independent schools, and FE and skills providers)
- short inspections for maintained schools, academies and FE and skills providers that were judged good at their previous inspection, to report on whether or not they are still good or better but will not provide a full set of graded judgements
- a full inspection of non-association independent schools within three years.

Jane Jones HMI  
National Lead for Mathematics  
email: [jane.jones@ofsted.gov.uk](mailto:jane.jones@ofsted.gov.uk)

Links to the autumn 2014 inspection handbooks:

[www.ofsted.gov.uk/resources/school-inspection-handbook](http://www.ofsted.gov.uk/resources/school-inspection-handbook)

[www.ofsted.gov.uk/resources/initial-teacher-education-inspection-handbook](http://www.ofsted.gov.uk/resources/initial-teacher-education-inspection-handbook)

[www.ofsted.gov.uk/resources/handbook-for-inspection-of-further-education-and-skills-september-2014](http://www.ofsted.gov.uk/resources/handbook-for-inspection-of-further-education-and-skills-september-2014)  
(updated September 2014)

Link to the consultation:

[www.ofsted.gov.uk/resources/better-inspection-for-all-consultation-proposals-for-new-framework-for-inspection-of-schools-further](http://www.ofsted.gov.uk/resources/better-inspection-for-all-consultation-proposals-for-new-framework-for-inspection-of-schools-further)