

## Joint MA/ATM Primary Group

*"I feel a little bit more cleverer by being at The Royal Society"*

Quite a few of us were just a bit excited about attending an ATM/MA Primary Group meeting at such an incredible venue and while the building definitely affected us all, the greatest impact came from being in the presence of others who care deeply about mathematics education. In attendance were members of ATM and/or MA holding a wide range of jobs in primary mathematics education, including: ITE lecturers, academics, consultants, school governors and teachers. One attendee, when introducing herself, said "I'm currently a ..... but I'm a primary teacher at heart", and this resonated with many of us.

Following from the 'mastery' focus of our January meeting, Debbie Morgan from NCETM agreed to fill us in on some of the key thinking behind NCETM's approach to 'mastery' and to share some of the key strategies that are being adopted by 'mastery specialist teachers' from each Maths Hub. I need to own up to having a real interest in this, as I am currently a doctoral student researching the way in which primary teachers are enacting the changes to both curriculum content and to pedagogy.

Two main themes got us all talking: the question of whether or not 'mastery' is 'new'; and the subject knowledge needed in order to adopt a new way of working. In relation to the first of these, Debbie showed us how the Shanghai approach spans what we might crudely think of as modern and traditional pedagogies (highlighted in yellow on the slide). When collecting data in schools, I've been really interested in how some teachers have talked about 'mastery' as a "new way of working" while others say to me that "mastery is nothing new". I suppose it depends on your starting point.

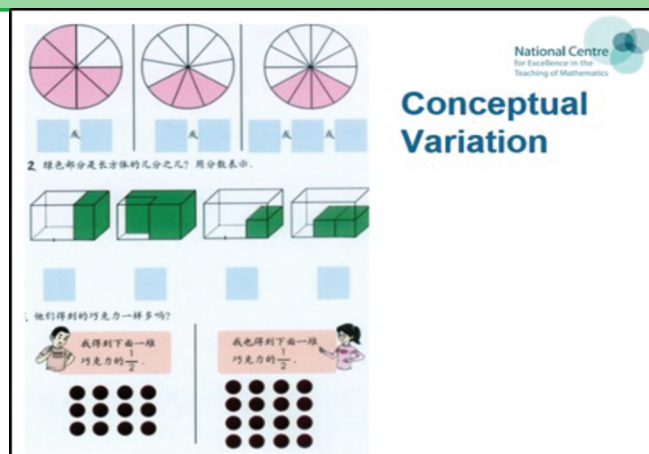
### Teaching Approaches in China

Traditional	Modern/Progressive
Teacher Led	Child Led
Whole Class	Differentiated (grouped)
Ignoring individual needs	Responsive to individual needs
Transmission	Constructivist
Examination focused	Subject focused
Content Driven	Process Driven
Learning facts and procedures	Developing deep conceptual understanding

The traditional has been discouraged as viewed as being inhibitive to deep conceptual understanding (Brodie & Pournara, 2005)

It was interesting how many of the approaches mentioned by Debbie could be likened to things that were already being done or promoted by those present. For example, the 'dong nao jin' task (translated as 'use your head') was related to the idea of directly addressing a misconception through an example. Debbie also described Shanghai as "the home of 'same and different'"; an approach familiar to all of us. While this was reassuring, some other approaches advocated by Debbie grated with us a bit; especially that of repetition, chorsing and memorisation.

In relation to 'mastery specialist teachers', Debbie said, "I want these teachers to become 'mastery' not just parroting,"

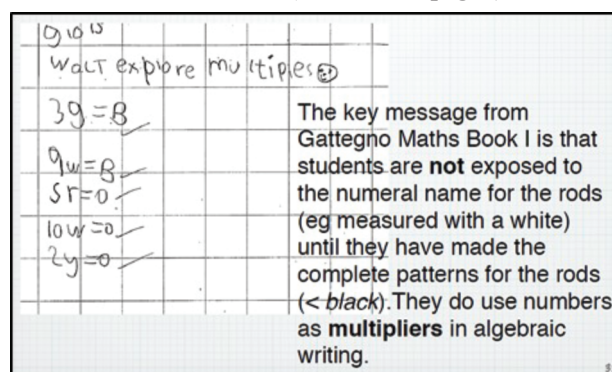


which got me thinking about subject knowledge. This has been a bit of an ongoing theme for me: what subject knowledge is needed in order to teach for 'mastery'? Can only 'master' teachers accomplish this? In my own research, the participant who has most been able to adopt new ways of working is a graduate of the MaST programme; someone who has a track record of thinking deeply about mathematics teaching. But what about 'normal' class teachers?!

In the second part of the meeting (after a superb lunch courtesy of The Royal Society ..... thank you so much!), we heard from Ian Benson of Sociality. Ian has been encouraging the group to engage with the work of Gattegno and Goutard across the past year, and at this meeting he brought along a teacher, Jenny Cane, who has been using Gattegno's "Mathematics with Numbers in Colour" textbook in her Year 1 classroom.

Jenny began her talk by telling us that she was not a confident teacher of mathematics and had been on something of a 'journey'. Ian's role in supporting this 'journey' was interesting for all of us involved in teacher education; Ian was more 'a guide on the side' with regular input and always at the end of an email. This was very different from the common model of attending course(s) and reminded me of a conversation I'd had recently about the factors that have supported one school to make wholesale pedagogical change. These included: a shared vision; a supportive Headteacher who is not looking for a 'quick fix'; a budget to buy necessary resources; regular timetabled opportunities for teachers to talk about and share practice; and sustained input from experts.

Whereas Debbie had talked about conceptual variation as a way of going deeper and gaining greater understanding (see slides below and on page 5), Jenny's children had explored astonishingly impressive mathematics through just one resource: the Cuisenaire rods. (Continued on page 5)



## Joint ATM/MA Primary Group (Continued from page 4)

The children are able to read quite complex equations using the letter names and explore the relationships between the rods.



This got us thinking about the value of knowing one resource really well versus having an appreciation of various resources and how they are related. Key learning for me, as someone who has dabbled with Cuisenaire in the past, was the way in which Jenny was able to explore advanced mathematics with her pupils because she had NOT fixed a value to the rods. So maybe a lack of conceptual variation is not nec-

essarily a bad thing if we have a deep understanding of mathematics, and of the affordances of different resources. Do we know how to make the most of what we have?

Our meeting coincided with KS2 SATs week and we spoke guardedly about the feedback that we'd heard from teachers who administered the papers. Once the embargo on talking about the tests has been lifted, I'm sure we'll get stuck into some healthy debate via email relating to both the 'content domain' and the 'cognitive domain' of these. The plan is to then write an evidence-based (not emotional!) letter to Nicky Morgan to set out our views on this year's papers. Ms. Morgan had better brace herself because as our chair, Alison Borthwick, so eloquently explained at the end of the meeting, we all felt "a little bit more cleverer by being at The Royal Society". It's going to be a cracking letter.

(Thank you to NCETM for permission to reproduce slides from Debbie's presentation. Thank you also to Bursted Wood Primary School with Sociality Mathematics CIC for permission to reproduce the images from Ian and Jenny's presentation (under Creative Commons BY-NC-ND).  
Fran Watson

## Primary Mathematics Challenge Group







The PMC team has been busy producing the paper for the November Challenge. This year it will take place during the week beginning 14<sup>th</sup> November. It will be another stimulating and challenging paper, designed to catch the interest of pupils and set them thinking about mathematics.

Problem solving is high on the primary school agenda and we see PMC as a useful resource for teachers. We are delighted to have produced a new book in the series 'Challenge Your Pupils'. Book 3 is now available from MA publica-

tions. (See page 2.) In addition to this the PMC website provides access to previous papers and an on-line paper, so there is plenty of opportunity for pupils to familiarise themselves with PMC papers before the November week.

We are always keen to increase the involvement of more schools in PMC. If you have friends and colleagues who would be interested in introducing PMC in their school, encourage them to do so. It really is fun and the feedback we receive tells us that children really enjoy it. Orders can be placed on-line and the Challenge is designed to be very easy to administer in school.  
Lesley Jones

The Professional Development Committee is pleased to announce this event.

		<h3>The Primary Mathematics Professional Development Day</h3> <h4>Inspiring Primary Mathematics</h4> <p><b>Saturday 12th November 2016</b> At Wycombe High School</p> <div> <b>KEYNOTE SPEAKER</b>  <b>Ems Lord</b> </div>	
<b>OPENING PLENARY:</b> <b>Ems Lord</b> Nrich Director, 'Inspiring Primary Mathematicians with Nrich'			
<b>INCLUDING WORKSHOPS FROM:</b>			
<b>Jo Lees</b> CPA and questioning for greater depth	<b>Ray Huntley</b> Creative reasoning activities		
<b>Brenda Robertson</b> Maths in the Early Years Foundation Stage - the curiosity, the problem-solving, the fun - and the rigour - start here	<b>Primary Mathematics Challenge Workshop</b> Using the excellent PMC materials in the classroom		
<b>Jacqui Clifft</b> Thinking about a common assessment model after levels	<div>           More information at <a href="http://www.m-a.org.uk/one-day-events">www.m-a.org.uk/one-day-events</a>            Email <a href="mailto:conference@m-a.org.uk">conference@m-a.org.uk</a> </div>		