Spring 2022

MATHSHUBS
EAST MIDLANDS EAST

NEWSLETTER

Welcome back

We hope you had an enjoyable and restful half term. Maths Hub Work Groups are well underway and are mostly back to running face-to-face. We have 299 schools engaged in Work Groups this year which we are delighted with given we are still very much in recovery from the impact Covid has had on schools and their ability to engage with professional development. Many thanks to all of the leaders who have supported their staff to join one of our programmes.

We'll shortly be thinking about planning for next year, and recruitment for some of our Local Leaders in Maths Education Programmes is already underway.

In this issue we're focussing on current opportunities and putting the spotlight on 2 programmes that were new this year:

- Subject knowledge for Teaching Mathematics - Primary Early Career Teachers
- Mastering Number Programme.

We hope you enjoy the issue, and have a great term.

From all of us at East Midlands East.

IN THIS ISSUE

Local leaders of maths education development programmes - APPLY NOW

We are now recruiting for next year's local leaders of maths education development programmes. Please use the links in the table for more information and how to apply!

Please do get in touch for for more information at enquiries@ememathshub.org

Programme Information	Apply	Deadline
Primary Mastery Specialist	Open now	Friday 20th May 2022
Secondary Mastery Specialist	Open now	Friday 20th May 2022
Professional Development Lead	Open now	Friday 20th May 2022
School Development Lead	Open now	Friday 20th May 2022

Specialist Knowledge for the Teaching of Mathematics Workgroup - Primary Early Career Teachers

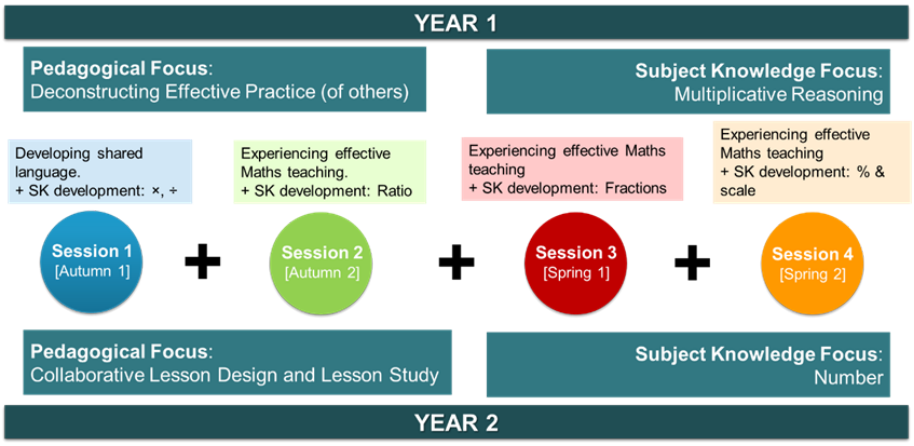
by Dr Marc North

The Teaching for Mastery agenda has ushered in heightened expectations of the level of specialist mathematics content and pedagogical knowledge needed by Primary teachers. Teaching mathematics well now involves having to give deep thought to a number of highly specialist maths-related ideas, including fluency, reasoning and conceptual understanding, variation, coherence, multiple representations, collaboration, language, and a form of differentiation that enables all children to learn the same content at roughly the same pace. For many newly qualified Early Career Teachers, this is a daunting prospect – partly because most did not have overwhelmingly positive experiences themselves of mathematics at school, and also because they have not trained as mathematics specialists. And, most teachers have experienced at some time or another, it's really hard to teach something to others (and in different ways) if you don't fully understand it yourself.

In response to this, this workgroup was established by the NCETM to offer high quality maths support for ECT's, focused on one area of maths but drawing in the relevant pedagogies and teaching and learning strategies, plus lesson analysis and lesson design. Other topic areas can be then supported in a second year to maintain the development of this group of teachers. This offer links to the extended two-year professional learning, development and support opportunities afforded by the Early Career Framework to ECT's.

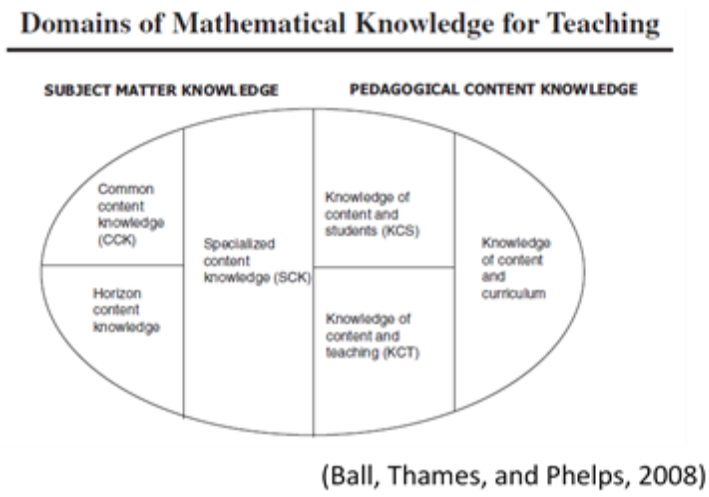
In short, the workgroup sought to support ECT's to develop both content and pedagogical knowledge.

We operationalised this combined focus on subject knowledge and pedagogy into four full-day face-to-face contact sessions. In addition, we identified separate priorities for the first and second years of the programme: Year 1 – deconstructing the teaching practices of other teachers via a Multiplicative Reasoning topic focus; Year 2 – collaborative lesson design and lesson study to enhance personal practice via a Number topic focus.

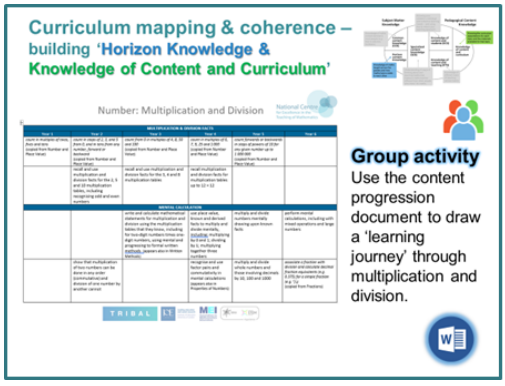


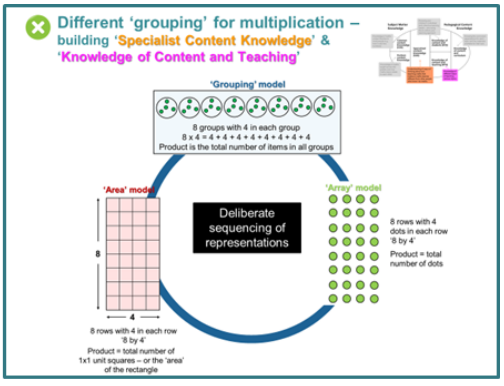
To focus the contents of each workgroup session, we have drawn heavily on the Domains of Mathematical Knowledge for Teaching framework. This framework provided a helpful structure for directing our attention on specific aspects of practice for both subject matter knowledge and pedagogical content knowledge in each session.

For example, in the first session we explored structures for multiplication and division – and investigated these topics by considering each domain of mathematical knowledge needed to be able to teach these concepts confidently and effectively.



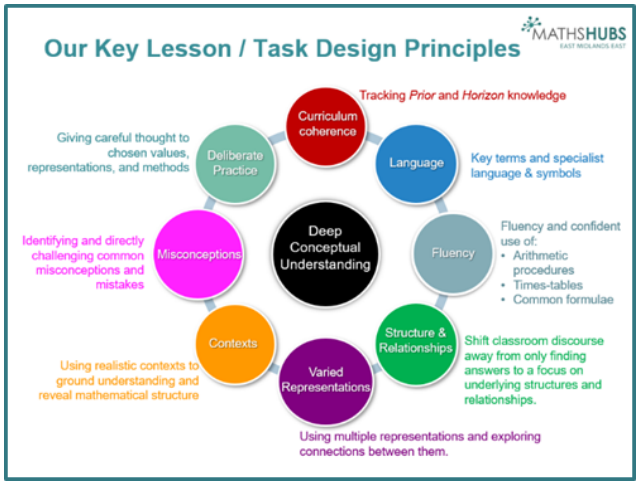
So, to target 'Knowledge of Content and Curriculum' and 'Horizon Knowledge', participants completed a curriculum mapping exercise. And, to address the 'Specialist Content Knowledge ' and 'Knowledge of Content and Teaching Domains', we investigated different representations and connections between these. And so on.





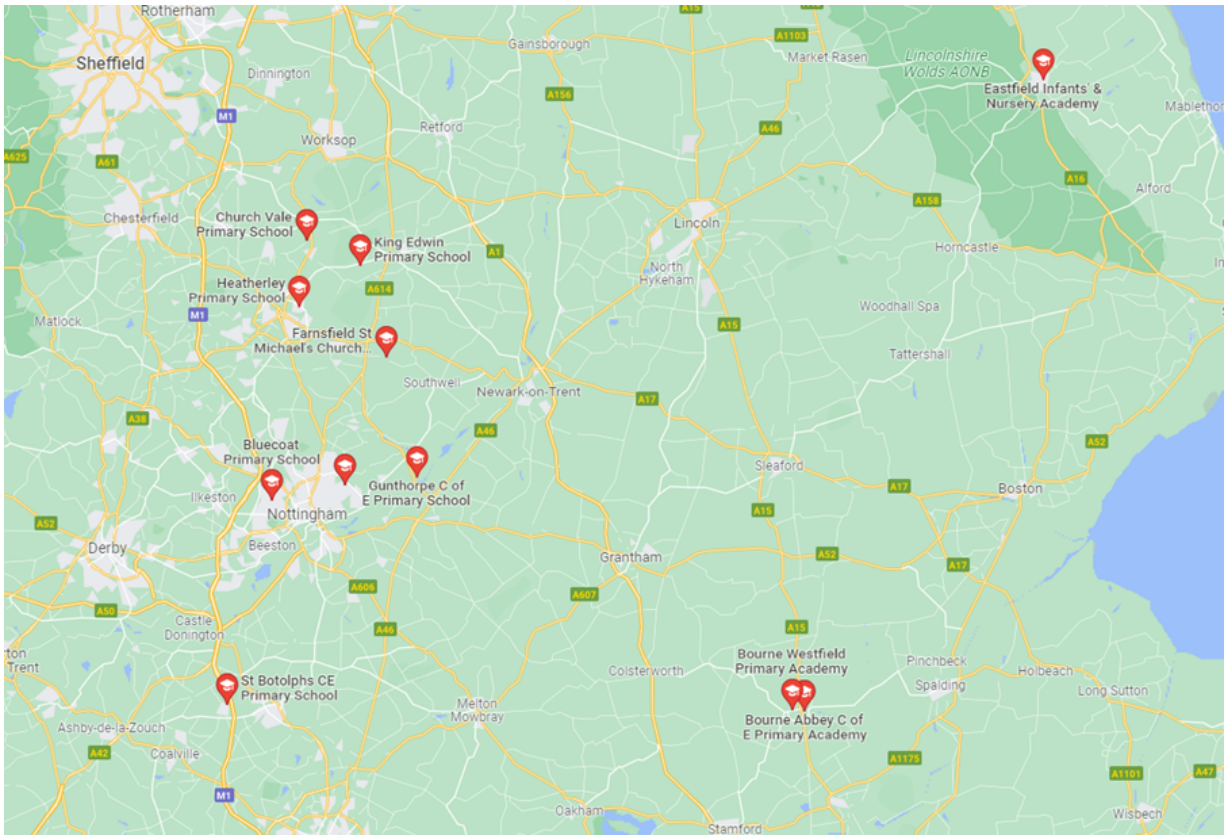
For the remaining sessions, we will continue to use these domains to investigate different aspects of the knowledge needed for different multiplicative reasoning concepts, including ratio, rates, percentages, scaling and fractions.

Although the Domains of Mathematical Knowledge for Teaching are helpful for focusing our attention on different aspect of knowledge, to make it easier for participants to use these ideas in their local school contexts, we translated the domains into language and categories that may be more familiar to the schools. This gave us us a set of principles that we are now using for designing and observing lessons.



In addition to the content focus, each session also includes an open-classroom visit to a Mastery specialist so that participants can experience effective mathematics teaching in action. Our observations and pre- and post-lesson discussions are then structured around the different Domains of Mathematical Knowledge for Teaching to ensure consistency between the content focus in workgroup sessions and in-lesson experiences. For example, in our second session we spent the morning in Ben Stanley's Year 6 class in Bluecoat Primary School and witnessed a phenomenal mastery lesson in action … we were all completely blown away by Ben's skill in differentiating subtly through questioning and challenge while keeping all children together on one content focus. In our third session (coming up soon!) we will be spending the morning in a Year 1 classroom in Bluecoat Primary to see a similar mastery lesson structure in action in a KS1 context, and in the afternoon we will explore the domains of mathematical knowledge for teaching Fractions.

So far we have completed two of the four contact sessions, with the third (Spring) session postponed due to Covid. We have 15 ECT's enrolled in the programme from 11 schools spread across Lincolnshire and Nottinghamshire, with all school phases represented - EYFS, KS1 and KS2.

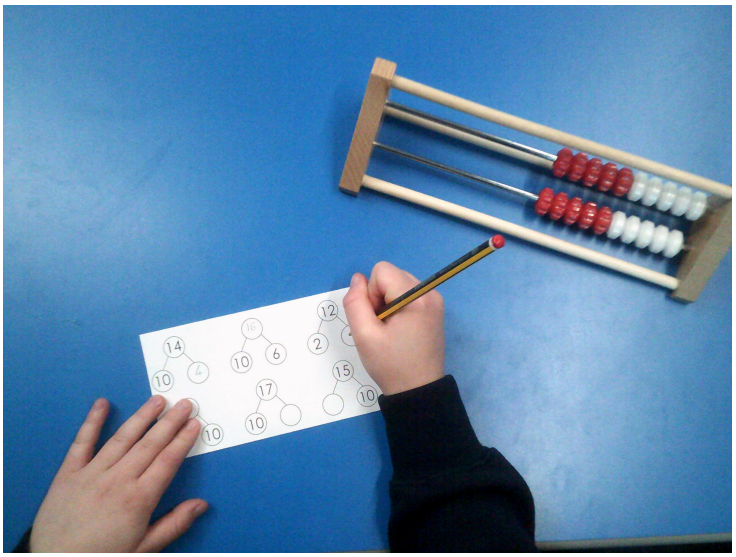


Although still early days, feedback from participants is that the workgroup has been helpful for challenging their thinking, giving them examples of effective practice in action, and impacting on their understanding. This, together with the face to face contact and endless supply of biscuits from Amie at the Hub have ensured a thoroughly enjoyable experience so far!

MASTERING NUMBER WITH LIAM BIELBY

Liam is one of our Primary Mastery Specialists running one of our Mastering Number Work Groups which is new for this year. Liam caught up with the Maths Hub and let us know how it was going:

I have been extremely fortunate to be involved with the inception and development of the new major national programme- Mastering Number, which has been rolled out across more than 5,000 primary schools across the country in this academic year and involves over 20,000 teachers. Mastering Number is aimed at our youngest children in school and aims to develop basic understanding of number through developing factual fluency, encouraging subitising and exploration of pattern and connections. This year, I find myself in the unique position of interacting with the same NCP through three different job roles- a member of the national delivery team for the NCETM, a Work Group Lead for the Hub and a Maths Lead across two participating primary schools.

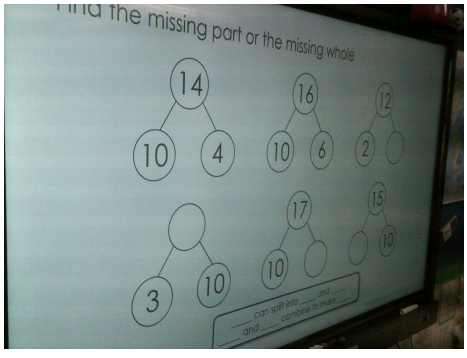


I am delighted with these short maths mastery sessions. The slides are really well thought out and visually stimulating. I also like how the relevant Numberblocks episodes are flagged up in the sides for various sessions.

-Primary teacher

At a school level, I am exceptionally pleased with the impact of the programme so far. Each Reception and KS1 teacher has access to expertly crafted daily lesson plans, resources and videos to develop children's fluency and number sense in small, coherent 10 minute sessions. Feedback from the teachers and children has been excellent and we have really started to notice a difference in children's confidence, understanding and use of the Mathematics they have learnt in the daily lessons.

Children are really beginning to notice more, think mathematically and verbalise their understanding in a way we weren't seeing prior to the programme. Our whole school policies and practices have changed to incorporate this vital session each day and we are now beginning to explore the ways in which it could be used to support less confident learners further up school. Leading Mastering Number has been a very different experience this year to previous Work Groups that I have run as it is conducted exclusively online.



The reception children are enjoying the mastering number activities and we are starting to see more evidence of some of them really thinking about numbers in their play.

-Reception teacher

Between myself and my colleague Erica, we have around 120 schools in our Work Group spread out across the region, meaning there are more than 360 teachers plus Headteachers and subject leaders involved in the programme.

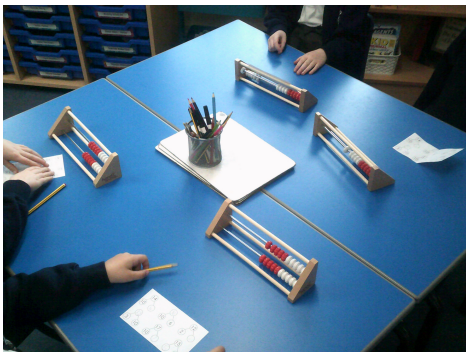
The confidence and ability of the children to represent and talk about numbers and how they are composed is a joy to see and hear. They are all so keen to show numbers in different ways using their fingers. Their subitising skills have improved and they are all keen to use modelled vocabulary. Diagonally is a favourite to use. It's great for engaging the quieter children as lots of representation with hands and fingers. A great assessment tool!

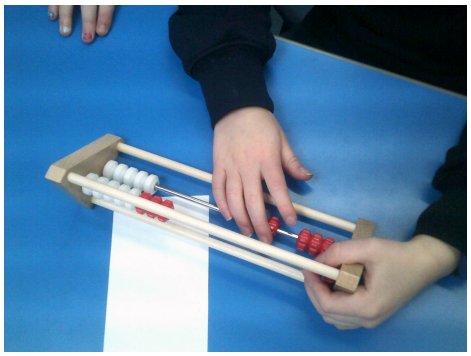
-Reception Teacher

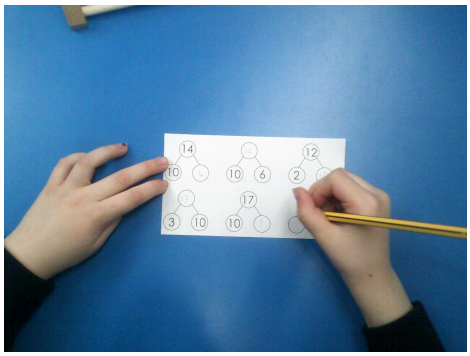
This has been an exceptional logistical challenge to ensure everyone knows where to find things and access support- special thanks must go to Amie for her Herculean effort with this!

Encouragingly however, the Mastering Number programme is allowing us to interact with schools as a Hub for the very first time.

I am extremely fortunate to be on a small team of national deliverers on behalf of the NCETM and have learnt so much already from working so closely with the Primary team to roll out this programme across the country. Spending time unpicking the thinking behind these resources and passing this onto teachers across England has been an enormous learning curve and something I am incredibly proud to be involved in.





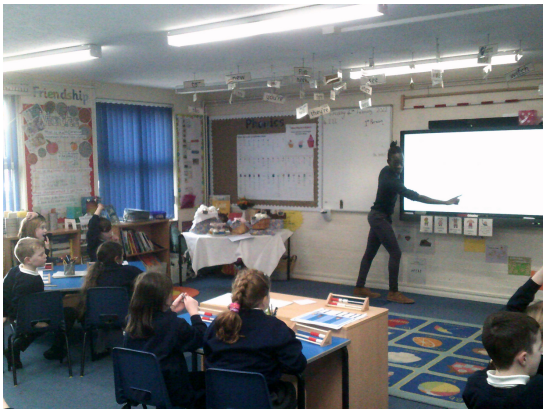


Despite the inevitable challenges and technical hurdles involved in logging up to 600 teachers onto a zoom call at a specific time for the sessions, it is really pleasing to see that feedback from teachers to us from across the country has been overwhelmingly positive.

As a Local Leader of Maths Education and advocate of teaching for mastery, I believe we can look at this programme and be reassured that ensuring that all children have access to high-quality, coherent mastery-style teaching from the very beginning is central to producing successful life-long Mathematicians.

We have just completed week 5 and our children are very much enjoying the sessions and take part very enthusiastically. They have quickly taken on the vocabulary and are beginning to use it in other maths sessions. I have particularly noticed they are now much quicker at number bonds and at recognising number patterns

-Reception teacher



Long may this continue through the work of what I believe to be the start of a vital, incredibly exciting project which has the potential to change outcomes for thousands of children across our region for years to come.

Liam Bielby

NEW! Maths and Science Innovation Work Group

We have identified issues and topics specifically identified as relevant to our local area in order to create and innovation Work Group from. At East Midlands East Maths Hub, we are going to be running Developing Shared Approaches to Maths and Science Teaching. Click the button to book on.

Book on now

NCETM UPDATES

New NCETM summary video

We've made a short new video, outlining the resources we've produced during this school year.

For primary teachers, the highlight is our Curriculum Prioritisation resource, now complete, which breaks down a whole year's teaching into small units. There's a range of PowerPoint slides referencing the Primary Mastery Professional Development Materials and the ready-to-progress criteria, as well as other slides for teachers to use in lessons.

New checkpoint resources for year 7 from NCETM

Secondary teachers can now benefit from a restructuring of our Secondary Mastery Professional Development Materials, which are broken down into 17 'core concepts'. Also, there's a new page holding separate PowerPoints for 52 'key ideas' contained in the core concept pages, as well as a subject knowledge audit for teachers in training.

Latest batch of Checkpoints

We've now published a new set of Checkpoints, focusing on arithmetic procedures and fractions. These are designed to help teachers of Year 7 maths diagnose understanding their students have brought from primary school.

New feature articles

We've published a number of new features recently. There may be something here for you!
Using the DfE's KS3 maths guidance in secondary teaching - steps to help you plan and teach percentage change.
Teaching maths in a real-life context - stemming from our weekly Twitter-based #mathsCPDchat discussions.
The DfE KS3 maths guidance - what you need to know - what the guidance includes, and the resources available to support you.
Podcasts get people talking about maths - how maths education is talked about in the world of podcasts, as well as a new podcast discussion where a research mathematician talks about learning A level maths with his former teacher.

GET IN TOUCH

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If you are interested in finding out more about Work Groups then please email us at

enquiries@ememathshub.org

or visit out website

www.ememathshub.org