

EAST MIDLANDS EAST MATHS HUB

NEWSLETTER - MARCH 2018



Session 3 of the Primary Maths Subject Knowledge Enhancement Programme - 15th March 2018

Introduction

The Spring term has been a busy one for the Maths Hub; we can hardly believe Easter is upon us already. As we all look forward to a well-deserved break we wanted to update you on recent developments.

Maths Hub Lincolnshire Base

We are delighted to announce that with effect from the end of May 2018 the Hub will have use of a brand new training suite based at St Faith and St Martin C of E Junior School in Lincoln City.

Areas of Lincolnshire and Lincoln City itself are designated as category 5 and 6 opportunity areas and the use of this facility will mean we can bring Maths Hub activities closer to those schools who need it. We are looking forward to making the most of this excellent opportunity.



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Teaching for Mastery



Secondary Maths Lesson Study - 5th March 2018

Government commitment to Teaching for Mastery has been reinforced this year with the announcement of further funding to support the expansion of the programme to reach 11,000 primary and secondary schools by 2023.

Secondary

To facilitate this expansion we have recently appointed a further three Secondary Teaching for Mastery Specialists who will begin their central training programme this term.

Our new specialists are:



Emma Emery
Brunts
Academy



Mathew Blackham
Boston High
School



Louise Elder
Bluecoat Aspley
Academy

Primary

Interviews for Primary Mastery Specialist positions take place after the Easter holiday, with the application process for Teacher Research Group schools commencing shortly after that.

If you are interested in your school being part of a Teacher Research Group, then please contact Julie Naidu, j.naidu@minster.notts.sch.uk for further information.

Secondary Maths: Bar Modelling Event

An increasing number of students will have encountered bar modelling to solve a range of problems at primary school. This course aims to build on this learning and explore how bar modelling can support students through KS3 into KS4. This practical, problem-solving session will provide attendees with many opportunities to try it out for themselves.

Whilst bar modelling complements a teaching for mastery approach, it is not essential that you are using this approach in your school to benefit from this powerful concept.

Wednesday 27th June 2018, 1.00pm to 4.00pm
The Minster School, Southwell

Please contact Julie Naidu to book your place.

Secondary Maths Conference

The East Midlands East and East Midlands West Maths Hubs would like to invite Heads of Maths and Line Managers to our Supporting Secondary Schools Maths Conference on Tuesday 3rd July at Trent Vineyard, Nottingham.

Full information can be found via our *online booking site* or by contacting Julie Naidu j.naidu@minster.notts.sch.uk

Local Leaders of Maths Education

Following on from the national LLME conferences we are inviting local leaders to a networking event on 14th June 2018, 1-4pm. This event is open to current Maths SLEs, PD Leads and current Work Group Leads. Please contact Julie Naidu for further information.



Workgroups

The majority of our workgroups are well underway and are providing excellent CPD for teachers across all phases. In this issue we are focusing on two of these workgroups; Developing Deep Mathematical Learning in the Early Years and Challenging Topics at GCSE, and we hope you enjoy reading about their progress. If this is something you are interested in and are keen to be involved, then please get in touch as planning for next year's workgroups are already underway.

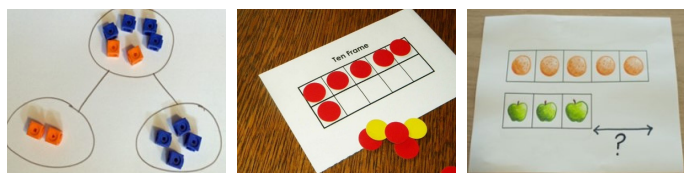
Developing Deep Mathematical Learning in the Early Years

By Erica McGinley and Jayne Carter

“What children learn is important, but how children learn is even more important if they are to become learners for life” Helen Moylett

Two groups of teachers from Lincolnshire, Leicester and Nottinghamshire have been exploring Mastery Maths in the Early Years. Over 40 teachers have taken part in CPD sessions alongside school visits to observe lessons and develop shared planning.

Participants have explored resources and structures which show clear mathematical concepts, patterns and help children make links. These have included the Part Part Whole Model, a Tens Frame and the Bar Model.



The group has focused on Additive structures and how children learn to add and has explored planning tools to support this.

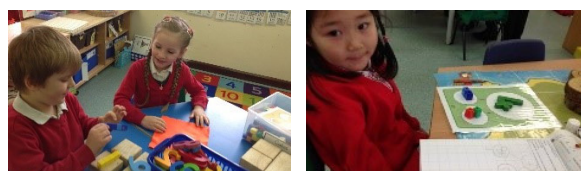
Progression from Counting to Addition includes:

- Counting - how many are there? Count all, count how many in a set.
- Composition - numbers are made up of other numbers, a number can be shown in different arrangements, numbers can be shown in different ways
- Comparison - comparing sets, which are equal? Which are the same? How many? More/less?
- Change - combining sets, increasing sets, what happens if I add? Decreasing sets, what happens if I take from set?

We have explored the key role of adult intervention in supporting children's mathematical understanding. Modelling and scaffolding mathematical concepts, modelling key language and vocabulary, planning for and using challenging questioning gives children opportunities to develop their mathematical understanding. Adults need to plan for and create an environment and confidence in mathematics where children are resilient learners and can explain their thinking and justify their ideas.

A final CPD session will take place in the summer term where resources will be shared and evaluation of the workgroup will take place.

Early Years teaching continues to be a key national priority. If you are interested in finding out what opportunities are available for teacher development in this area please contact the Maths Hub.



Work group members have said:

“As a result of this workgroup children can see the “magic” in number.”

“I am going to be more explicit and precise in my own Mathematical language.”

“I am going to encourage children to make predictions and enable them to use numbers more deeply.”



Challenging Topics at GCSE – A Participant's View

By James Hallam, RQT

This national project has been looking at how teachers can tackle the more challenging aspects of the new GCSE. Our workgroup has focused on the topic of Ratio and Proportion and making connections between Multiplicative Reasoning (MR) required across different areas of the curriculum.

Personally, I was interested in this working group as within our school there are often excellent ideas and resources shared within the department and this was my opportunity to work with colleagues from other schools, and bring ideas back to share. There is plenty of opportunity in the face to face sessions to share ideas, and I have been able to trial resources within my own classroom and then discuss their effectiveness at subsequent sessions. It has been great both to trial ideas myself as well as listen to how different schools are using the resources to improve pupils' understanding of the topic.

It was clear from the start that MR was embedded in much more of the curriculum than many of us had first thought. As well as Ratio and Proportion, an understanding of MR is required in topics such as Speed, Distance and Time (SDT), Fractions, Percentages, and Trigonometry just to name a few. It was also clear that many pupils have been using MR since Primary School without actually knowing that this was the case. For example if a pupil understands that $3 \times 4 = 12$ can also be written as $12 \div 4 = 3$ then they can use this knowledge when using SDT formulae without the formula triangles so often used.

All formula triangles represent multiplicative relationships

$$2 \times 3 = 6$$

$$3 \times 2 = 6$$

$$\frac{6}{2} = 3$$

$$\frac{6}{3} = 2$$

If $ab = c$, then we know that $ba = c$, $\frac{c}{b} = a$ and $\frac{c}{a} = b$

speed \times time = distance

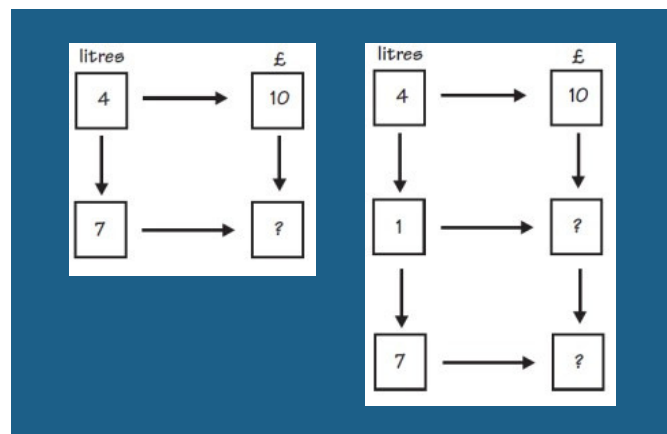
time \times speed = distance

$$\frac{\text{distance}}{\text{speed}} = \text{time}$$

$$\frac{\text{distance}}{\text{time}} = \text{speed}$$

We have seen many fantastic resources that we can use and adapt in order to improve pupils' understanding of this topic area. The resources are designed to embed the Teaching for Mastery approach to learning and make pupils think more deeply about the topic.

The group have also looked at different representations that can be used in order to make a problem easier to understand or visualise. A popular representation with the group is the ratio table, which links to the unitary method as shown below.



The aim of the sessions is not only to suggest suitable resources, but also provide a framework for how these resources can be used to improve pupils' understanding. By the end of the final sessions we hope that for each school we will be able to share our ideas with our own departments and each other to encourage a collaborative approach to teaching MR throughout the GCSE course with a view to then ensuring that it is also embedded in our KS3 schemes of work.



Core Maths Preliminary Materials - 8th March 2018

