

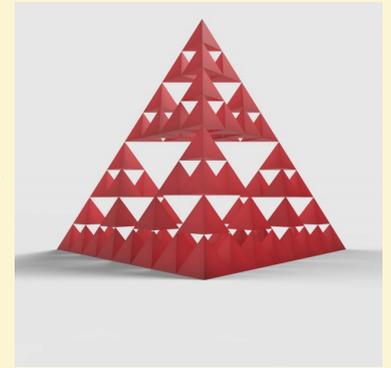
News from our Maths Hub Lead, Abha Miller:

Dear All,

I am so proud of our community and of how we have responded to the challenges of keeping schools open. The Local Leaders of Mathematics Education meetings have always left me with a smile on my face as I love learning and talking about mathematics. I feel that this has certainly added to my well-being and thank you to all the free online resources. I thought I would share the philosophy of the Desmos;

'Desmos wants to build a world where every student learns math and loves learning math, where a student's access to the power and beauty of math doesn't depend on their place of birth, race, ethnicity, gender, or any other aspect of their identity'.

I know that we in the BBO community share these beliefs and we strive to ensure that no child is left behind. Next year we will be sharing ideas for providing online support to students who may need a boost in mathematics and if you have any great ideas please get in touch with me directly. We are also finding increased ways to raise awareness of the many charities that also need our support. Our mathematics students will be creating a giant Christmas TetraTREEdron to bring some fun and sparkle into winter nights and to raise money for [Save the Children UK](#) | [Global Children's Charity](#)



I will keep you updated on our progress via twitter [@BBOMathsHub](#)

If your school is also doing a fun mathematics project please share with BBO and will promote this in our next newsletter.

Meanwhile have a happy holidays , keep safe and well and catch up in the New Year .

Abha Miller

TEACHING FOR MASTERY

We still have a few places available for primary schools to join a Readiness Work Group in 2020/2021.

Email us at info@bbomathshub.org.uk for further information and an application form.

Not sure which is the right path for you? Contact us and we will put you in touch with one of our Mastery Specialists.

Testimonial from one of our Primary Mastery Specialists: *"Last year (before I started my Specialist Training) I participated in a Teaching for Mastery Work Group with the BBO Maths Hub and I can honestly say it was one of the best CPD opportunities I have had for developing my own teaching and for leading maths across our school. Next academic year, in my role as a Primary Mastery Specialist I will be leading a Work Group on behalf of the BBO Hub and it would be great to work with more local schools."*

Our work groups are all planned for 2020/2021. See pages 4-7 for details

Sustaining Primary Mastery Work Group

Our school has been part of the Maths Hub for 3 years now. During this time, our staff have also enhanced their expertise attending courses to enhance the expertise of our TAs, EYFS and recently qualified teachers.

Being part of the sustaining group is a testament to our commitment as educators that we can always improve and the TRG style gives staff opportunities to develop their own skills in delivering professional development - which for middle leaders will be beneficial.

Like any school we have had new staff and the sustaining group is a way to refresh our understanding of mastery teaching and shape our CPD offer. We look forward to working alongside teachers in our local area to form partnerships and share good practice that we can use on our own schools. There will be opportunities for the sessions to be tailored to the specific needs in our schools and twilight sessions will be a good way to share this TRG with all of our staff.

We have had our first meeting and, in a time when teaching can feel exhausting, it was a great opportunity to turn the conversation back to our core purpose - quality first teaching in our schools for all of our children.

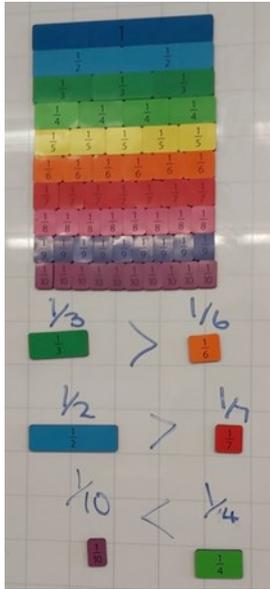
**Caroline Tomlinson, Hanwell Fields Community School, Banbury
Primary Mastery Specialist, Deputy Head, Maths Lead, SLE**



Secondary - Developing Conceptual Understanding

Over the past year, our department has been working on lessons which allow students to really develop the conceptual understanding that will allow them to master a topic, rather than just learning methods and algorithms. We used the time during lockdown to develop a series of new curriculum materials with an emphasis on incorporating a mastery approach into our teaching. We managed to engage with a vast array of research and CPD across the department with a focus on forward-facing approaches for a range of topics. Across the department we've attended MathsConf 23 and 24, Complete Maths development sessions, White Rose Maths development sessions and Seneca learning Maths conference; read books by Craig Barton, Mark McCourt, Jo Morgan and many more and applied what we've learned to help guide our approaches for lessons.

This term, our Y7 students have been comparing fractions. Traditionally, we have approached this topic by teaching students to find equivalent fractions with common denominators and use these to make the comparison. This has not always allowed students to get a real sense of the relative size of the fractions and we felt that just following a method to get to a solution was holding them back when they came to tackle more challenging problems.



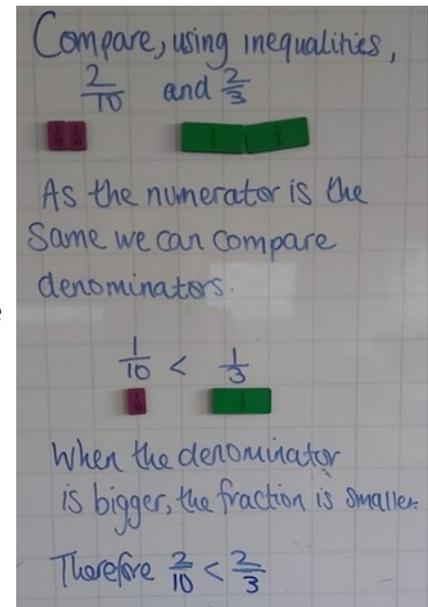
Use of manipulatives was a departmental focus last year as we had several new members join the department with varying levels of experience when it came to deploying concrete and pictorial approaches in the classroom. We felt strongly that manipulatives would help our students develop more complex schema for many topics, including fractions. This is supported by the EEF report 'Improving Mathematics in keys stage 2 and 3' which advocates the use of manipulatives and representations and also by the 5 big ideas in Teaching for Mastery which includes 'Representation and Structure'.

We began our journey with manipulatives by looking at the physical size of fractions and deciding how many of each were needed to make a whole. We built up our fraction wall using a range of different unit fractions and

looked at how we could tell which of two fractions would be smaller.

Our students were able to compare denominators of unit fractions, use inequalities to compare unit fractions and then order a group of unit fractions. Classes then moved students on to comparing non-unit fractions with the same numerator – returning to the manipulatives and fraction wall to explain their approaches and conclusions.

This approach has allowed our students to become more comfortable with the relative size of different fractions. Some are still using manipulatives and some have moved on to pictorial representations but most are able to accurately compare fractions without using either of these supports. When asked to justify their decisions, we have found that students are able to refer back to the manipulatives to supplement their reasoning. We also have some students who are very happy to use algebra to generalise their findings when comparing fractions. We now feel students are ready to move on to equivalence with fractions!



Karen Moss, Secondary Mastery Specialist

The Henry Box School, Witney

Please note that due to the ongoing uncertainty over Covid-19, all work groups will be run remotely until at least Easter 2021. **All of our Work Groups are free.**

EYFS Work Groups

- Specialist Knowledge for Teaching Mathematics (SKTM) for Early Years Teachers**

In this project for **Early Years** Teachers will develop mathematical subject knowledge in conjunction with understanding the pedagogy that underpins the teaching of it. Understanding of mathematical structures will be explored so participants gain a detailed understanding of how children learn early mathematical concepts.

We are offering 2 work groups, based around 4 on line sessions, 1.00pm—3.00pm, both being led by Joe Burbank.

Cohort 1: 27 Jan + 24 Feb + 17 Mar + 28 Apr [Book](#)

Cohort 2: 10 Mar + 19 May + 9 Jun + 23 Jun [Book](#)

Primary Work Groups

- Specialist Knowledge for Teaching Mathematics (SKTM) for Primary Teachers**

Work Groups in this project for **Primary Teachers** will develop mathematical subject knowledge in conjunction with understanding the pedagogy that underpins the teaching of it. Understanding of mathematical structures will be explored so participants gain a detailed understanding of how children learn early mathematical concepts.

We will be offering 8 work groups, based around 4 on line sessions led by Nathan Crook, Rachael Odeniyi and Natalie Ivey

Cohort 1: 14 Dec + 7 Jan + 22 Feb + 18 Mar **Sold Out**

Cohort 2: 11 Jan + 8 Feb + 8 Mar + 29 Mar (Mondays) [Book](#)

Cohort 3: 5 Feb + 5 Mar + 23 Apr + 21 May (Fridays) [Book](#)

Cohort 4: 22 Feb + 22 Mar + 26 Apr + 24 May (Mondays) [Book](#)

Cohort 5: 25 Feb + 15 Mar + 26 Apr + 24 Jun [Book](#)

Cohort 6: 25 Feb + 25 Mar + 29 Apr + 20 May [Book](#)

Cohort 7: 3 Mar + 31 Mar + 28 Apr + 19 May (Wednesdays) [Book](#)

Cohort 8: 29 Apr + 13 May + 7 Jun + 21 Jun [Book](#)

• **Specialist Knowledge for Teaching Mathematics (SKTM) for TA's**

Work Groups in this project for **Teaching Assistants** will develop mathematical subject knowledge in conjunction with understanding the pedagogy that underpins the teaching of it. Understanding of mathematical structures will be explored so participants gain a detailed understanding of how children learn early mathematical concepts.

We will be offering 4 work groups, based around 4 on line sessions, 9.00am—1.30pm, all led by Dawn Butler.

- Cohort 1:** 11 Jan + 8 Feb + 15 Mar + 22 Apr [Book](#)
- Cohort 2:** 13 Jan + 10 Feb + 17 Mar + 21 Apr (Wednesdays) [Book](#)
- Cohort 3:** 18 Jan + 22 Feb + 22 Mar + 19 Apr (Mondays) [Book](#)
- Cohort 4:** 20 Jan + 24 Feb + 24 Mar + 20 Apr [Book](#)

• **Primary Mastery Readiness**

Not all schools, for a variety of reasons, are ready to take the step into a formal Teaching for Mastery work group in one leap. That is why the Mastery Readiness Programme has been developed. This is a free programme of online training and bespoke support.

This work group is based around 10 on line afternoon sessions, 1.30pm—4.30pm, all led by Gill Knight

7 Dec + 13 Jan + 26 Jan + 25 Feb + 9 Mar + 27 Apr + 17 Jun + 30 Jun + 1 w/c 17 May [Book](#)

• **Primary Maths in a Blended Learning Environment**

This project is aimed at primary teachers looking to support the delivery of online learning for Maths in their schools. There will be a focus on the use of the DfE guidance and NCETM support materials to create a sequence of learning that uses different platforms to: reactivate prior knowledge; model new concepts both with manipulatives and representations and through teacher videos.

This work group is based around 5 on line sessions, 1.30pm—3.30pm, led by Caroline Tomlinson

10 Dec + 21 Jan + 18 Mar + 29 Apr + 27 May [Book](#)



Primary & Secondary Work Group

- Yr5-8 Continuity Work Group**

Teachers from different phases will work together in this Work Group, to improve communication between Key Stages 2 and 3. Participants in this project will take **multiplicative reasoning** as the focus for their work and develop a consistent approach to it through discussion, joint lesson design and delivery, observation and the development of documentation to support continuity.

We will be running two cohorts of these work groups, both led by Lucy Browne

Witney: 19 Jan + 9 Mar + 11 May 4.00pm—5.30pm [Book](#)

Wantage / Didcot: 3 Nov + 20 Jan + 10 Mar 4.00pm—5.30pm [Book](#)

Secondary & Level 3 Work Groups

Mathematical Thinking for GCSE

Teachers or departments keen to address the **reasoning and problem-solving** challenges of the mathematics curriculum and its assessment at GCSE are encouraged to take part in this project. This work group will explore professional development activities focusing on practical and accessible classroom-based approaches. The activities themselves also offer a model for wider departmental professional development processes, and hence could provide the basis of an effective departmental improvement programme in this area.

We will be running one cohort of this work group, led by Dr Audrey Curnock

Dates: 11 Jan + 28 Jan + 16 Mar + 7 May, 4.00pm—5.30pm [Book](#)

Mixed Attainment Teaching in Secondary

To support schools teaching mixed attainment classes so that all pupils reach their potential and develop deep knowledge, understanding and confidence in mathematics. This is for any teacher who is interested in developing their teaching of mixed attainment groupings, especially departments who are teaching mixed attainment or are planning to.

We will be running one on line cohort of this work group, 4.00pm—5.30pm, led by Andrea Wickham

Dates: 20 Jan + 24 Feb + 21 Apr [Book](#)

Secondary AFL in Remote Learning

This workgroup will look at the implication that a Mastery approach to teaching has on Assessment For Learning. It will pay particular attention to the types of questions that help assess progress against the 5 big ideas of mastery .

This is for teachers who need help use online tools more effectively; teachers who are interested in broadening their range of tools to achieve assessment for learning – whether in class or remotely; teachers who are developing their practice to include more aspects of mastery.

We will be running one cohort of this work group, on line sessions, 4.00pm—5.30pm, led by Anne Morgan

Dates: 26 Jan + 2 Mar + 27 Apr [Book](#)

Developing Core Maths Pedagogy

This Work Group gives teachers opportunities – through collaboration and experimentation – to develop improved teaching approaches that support the open-ended problem-solving skills Core Maths students need, and share these with departmental colleagues. Participant departments will support the role of Core Maths in promoting contextualised problem-solving and links to teaching in other subject areas. Participants will be able to identify and make effective use of existing Core Maths resources. This project, is run collaboratively by the Maths Hubs Network and the Advanced Mathematics Support Programme (AMSP).

We will be running one cohort of this work group led by Lesley Swarbrick

Dates: 1 Dec + 4 Feb + 23 Mar + 29 Apr + 25 May, 4.30pm—6.30pm [Book](#)



Events / Network Meetings



The **Maths Inspiration Virtual Christmas Show**, with a line-up including Ben Sparks, Hannah Fry and Zoe Griffiths, aimed at Years 9, 10 and 11, is 13.15 to 15.00 on Friday 4th December. To book <https://amsp.org.uk/events/details/7688>

Following on from the enormously successful Summer Festival, the **Core Maths Winter Festival** has three events in January. For details go to <https://amsp.org.uk/events/details/7397>

The next online network meeting for **Bucks and Oxon** secondary teachers is on Thursday 28th January at 4.30pm. Topic tba. Details available soon.

Slough and Windsor online network has its next meeting on Tuesday 2nd February. Details soon.

There is an online twilight CPD session entitled Problem Solving for C grade Students aimed at teachers of average A level students who struggle with Problem Solving and Modelling. This is on Tuesday 9th February from 4.30 to 6.45 (including a 15 mins break in the middle). For more information and to sign up <https://amsp.org.uk/events/details/7995>

Maths and Physics Teacher Training with the National Mathematics and Physics SCITT

The National Mathematics and Physics SCITT (NMAPS) would like to thank schools hosting NMAPS trainees this year and to invite schools to express an interest in being a main or second placement school for an NMAPS trainee teacher for 2021-2022.

NMAPS offers high quality specialist training to Mathematics and Physics trainees in a unique collaboration between the State and the Independent Sectors. We work with 10 Hub schools across the country and have 40 Mathematics and 19 Physics trainees on our programme this year.

Our Chiltern Hub, places trainees in Buckinghamshire, Berkshire and Oxfordshire. Having had hugely successful years in 2019 and 2020, we are seeking partner schools who would like to offer main and/or second placements in Mathematics or Physics in 2021-22 for our growing number of high-quality trainees.

Why host an NMAPS trainee?

- As a national, subject-specific SCITT, we attract exceptionally strong candidates, with an excellent level of subject knowledge
- NMAPS offers high quality, subject specialist training to Mathematics and Physics trainee teachers, focusing more than 50% of training time on subject specific pedagogy
- Training is designed by outstanding classroom practitioners in conjunction with experts from the national subject associations: The Mathematical Association and The Institute of Physics
- The NMAPS programme has very high retention and employment rates
- Hosting and mentoring a trainee offers huge benefits including the professional development of the mentor, the injection of new energy and ideas and a supernumerary specialist resource

NMAPS conducts a rigorous interview process and completes screening checks for all applicants including an Enhanced DBS check prior to the start of their training year

Please note that hosting an NMAPS trainee does not preclude you from offering a placement to a trainee from another SCITT.

For further information please visit our website <https://www.nmapscitt.org.uk/>

To express an interest email enquiries@nmapscitt.org.uk

