

BBO MATHS HUB NEWSLETTER

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NEWS FROM THE BBO MATHS HUB TEAM

National Numeracy Day takes place next week on 18 May. We all have become increasingly aware of the impact of Covid 19 and the impact of students learning. It is likely that we will all see an increase of students with Maths Anxiety amongst other learning issues, so it is vital now to promote awareness. Maths Anxiety describes feelings of worry and stress that can get in the way of thinking about numbers. It can lead to avoidance of maths, which can impact life chances and earning potential. We are striving for a fairer society where the gender pay gap is diminished and understanding number is key to achieving this equality.



In these teaching strategies, from the University of Sheffield, active and peer learning is one of approaches recommended. "Activity-based learning: Students benefit from time for discussion and practice rather than memorisation and rote recitation. Research suggests that collaborative learning where groups work together to construct methods for approaching problems and get feedback on their ideas from their peers, increases understanding. Peer learning within and outside the classroom can increase confidence and reduce anxiety if it is a safe, supportive environment where students all feel as if they are contributing."

Abha Miller

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Becoming a Primary Mastery Specialist

PRIMARY

Jennie Forde, Primary Maths Hub Lead

The BBO Maths Hub is recruiting four new Primary Mastery Specialists to join the team for 2022/23. The Mastery Specialist Programme for primary teachers started in 2015/16. Each year over a hundred primary teachers – three of four from each Maths Hub – complete a programme of professional development to become Mastery Specialists. In every subsequent year, each of these teachers leads a Teaching for Mastery Work Group. This involves working with participant teachers from six or seven primary schools within their Maths Hub area, so that these schools can start to introduce teaching for mastery themselves.

From a small start of just 70 teachers across the country only a few years ago, there are now approaching 1,000 Primary Mastery Specialists established and operational. They will collectively have worked with more than 8,000 other primary schools, which represents around half of all primary schools in England. (NCETM)

Becoming a Mastery Specialist is demanding and challenging but incredibly rewarding. The team at BBO have created a warm and supportive environment where we work collaboratively to consider the best approach to professional development in the teaching of mathematics at primary school. The team have a strong commitment towards continuous improvement and professional challenge, which is reflected both in their work with schools and in their own development as teachers and school leaders. As a primary team, we have a wealth of experience in leading professional development, subject leadership, school leadership, and school development and improvement. A number of the specialists who have joined our team since 2015/16 have gone on to develop their career as senior leaders in school, independent consultancy and in Maths Hub leadership and management.



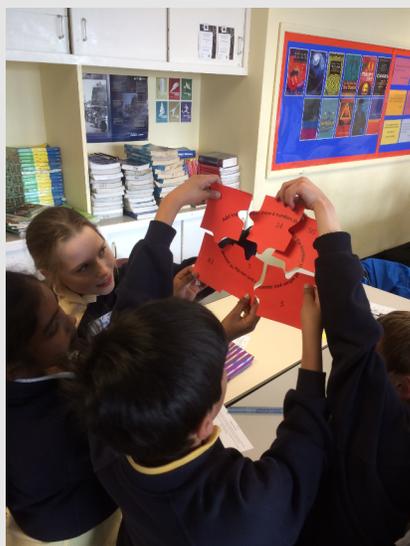
Mastery Specialists at BBO have described how the professional development opportunities and the challenge of being part of this team has led to reflection on and growth in their own practice and subsequently with colleagues and work group participants that they have led. Caroline Tomlinson, Mastery Specialist and Head Teacher at Grendon Underwood school reflected that, "Being a mastery specialist gave me confidence to persevere with a concept and the knowledge to adapt my practice. My maths lessons became more engaging as I had an ever growing "toolkit" of strategies gleaned from other specialists and the discourse and practice in the teacher research groups."



Becoming a Primary Mastery Specialist (cont.)

PRIMARY

Jennie Forde, Primary Maths Hub Lead



Fiona Lyford, Mastery Specialist and Deputy Head Teacher at St Edburg's school, Bicester noted how her role as a Mastery Specialist and engagement with the specialist programme has led to a shift in professional development with staff at her school, "Our professional development for teachers has shifted to achieve a balance between developing pedagogical understanding alongside developing subject knowledge. Teachers are fully engaged with their own professional development because they can see the importance of understanding how to teach as well as what to teach and this has been supported by the use of the NCETM Professional Development Materials. Teachers are confident in the use of the Teaching for Mastery Approach because it is evidence based and research led, but they are also seeing the impact it is having in their own classrooms on their own pupils' subject development and the way they articulate their mathematical thinking."

If you have a strong interest in developing your own subject knowledge, pedagogical understanding and in professional development, then joining our team could be the next step for you. We would love to hear from you.

Applications are being taken via the [NCETM website](#). You can find more details here, along with a short video and podcast from a current Mastery Specialist, explaining what it has meant to them.

The deadline for applications is 20th May 2022.

If you would like to speak directly to one of the team before submitting an application, please email info@bbomathshub.org.uk and someone will get back to you to arrange a call.

Primary Mastery Specialist Programme

Mastery Specialists are classroom practitioners who develop expertise in the mastery approach to teaching maths. Through rigorous and interactive training, they become experts in introducing and embedding mastery. After first developing a mastery approach in their own classrooms, they go on to support colleagues in their own and other schools.

The Mastery Specialist Programme for primary teachers started in 2015/16. Each year around 140 primary teachers – four from each Maths Hub – complete a programme of professional development to become Mastery Specialists. In every subsequent year, each of these teachers leads a Teaching for Mastery Work Group. This involves working with participant teachers from six or seven primary schools within their Maths Hub area, so that these schools can start to introduce teaching for mastery themselves.

Following the successful first seven cohorts of the Mastery Specialist Programme, the NCETM and Maths Hubs are now seeking to recruit an eighth cohort of expert primary school teachers to develop and work as Primary Mastery Specialists.

The deadline for applications is 20.05.22.



MORE INFO

Introducing Bar Models for Equations

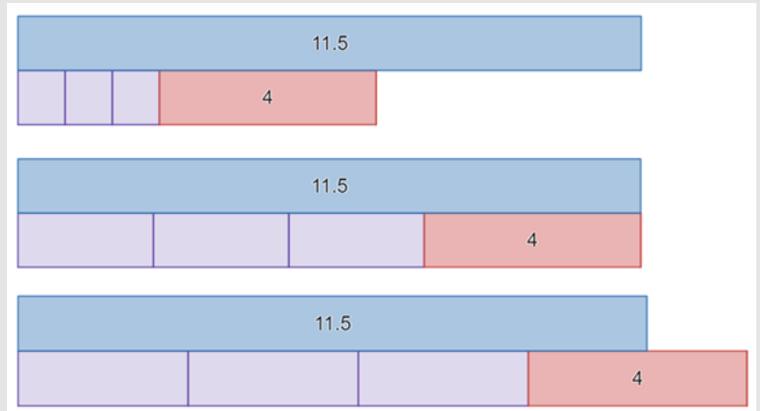
SECONDARY

Crispin Hoad Secondary Mastery Specialist, The Warriner School, Banbury

I have recently been introducing my Year 8 group to using a bar model to represent an equation. This has been an interesting process, since unfortunately they have seen solving equations previously without a bar model. I spent a whole lesson on introducing the bar model without even mentioning solving the equation to find the value of the unknown.

The first job was to ensure that they all understood the difference between a variable and an unknown. An often-overlooked difference, but I felt it very important that students were able to distinguish between the two. To demonstrate the concept of a variable, I used a Desmos demonstration where a slider changes the length of the variable in an equation. (There are examples of this in the PD Materials 2.2.1.3 Example 6).

By being able to change the length and value of the variable, students were able to see the effect that this had on the overall value of the expression. Students were able to see that at some point the expression we were changing was equal to another value or expression. This led through to students seeing the importance of the length of the bars and the idea of having an equation when the two bars are of equal length.



At all points during this introduction, I was ensuring that correct language was used, in particular I was quick to draw attention to incorrect use of the words equation and expression.

The next step was to start getting students to sketch the bar model for a given equation and write the equation for a given bar model. This was a good opportunity to check that students have a strong grasp of the concepts that are rules of maths, the concepts that are conventions and the parts that don't matter.

a	7	a
12		

For example, when looking at the bar model on the left, students gave me equations such as $a+7+a=12$, $2a+7=12$, $12=a+a+7$ etc, all of which are technically correct but allowed for a good discussion about how equations are conventionally written. Again, during this exercise there was no mention of solving or finding the unknown value.

conventionally written. Again, during this exercise there was no mention of solving or finding the unknown value.

The rest of the lesson was focussed on finding as many equations as possible from the diagram below. This allowed students to focus on the bar model while also introducing them to as many different types of equations as possible.

Within the question, I deliberately introduced expressions with different unknowns, expressions that would lead to equations with unknowns on both sides of the equations, and expressions that should be simplified. This ensured that students' attention was drawn to key aspects of what makes an equation an equation and to ensure that they had seen the bar model for as many future scenarios as possible.

x	x	10	
17			
b	b	b	
13.5			x
6	g	g	3
p		q	

Introducing Bar Models for Equations (cont.)

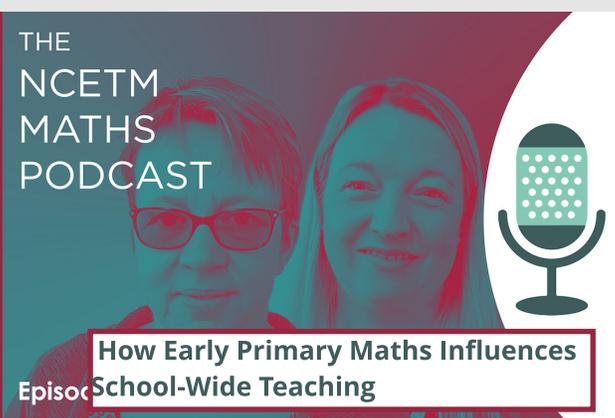
SECONDARY

Crispin Hoad Secondary Mastery Specialist, The Warriner School, Banbury

Students were all able to find equations from the diagram, some with more success than others. There were lots of discussions between students who claimed to have found all the solutions, including whether or not an equation containing the expression $6+g+g+3$ could count as a different equation to one containing $2g+9$.

Overall, despite spending a whole lesson not solving equations, this lesson was a very important one for the students. It meant that we could effectively begin solving equations in the following lessons due to a stronger understanding of equations in general, as well as a full understanding of the bar model. A few weeks later, some students are still drawing bar models although most have moved on from this, but the model is there to fall back on if needed, which is the whole purpose really.

NCETM NEWS AND FEATURES - PRIMARY AND SECONDARY



Primary Work Groups and Opportunities for 2022/23

PRIMARY

The Maths Hub Programme has PD opportunities for all teachers at all stages in their careers and across all phases. With all of our programmes for 2021/22 underway, we are now looking ahead to the next academic year and are pleased to announce that applications have now opened for some of our projects running in 2022/23. Follow the 'More Info' links for further details on the opportunities and how to apply on our website, or contact info@bbomathshub.org.uk to discuss the best programme for you and your department.

All of our Work Groups are free.

Primary Mastery Readiness

Lots of schools are ready to start their mastery journey, and some would benefit from initial support before becoming part of the full programme. Our diagram shows a school's journey towards mastery. Use it to determine where your school's journey starts (click/tap diagram to show a larger version with more detail of the journey).

Who can take part?

Schools will have an identifiable barrier to being able to successfully implement teaching for mastery at present. Barriers may include an Ofsted grading of RI or Inadequate, poor pupil progress in maths, serving an area of low social mobility, or issues in the school that have meant the implementation of sustained change has been difficult.

What is involved?

Schools with additional challenges need bespoke support to ensure their systems and cultures are conducive to a teaching for mastery approach. Those who are not yet ready to join a Teaching for Mastery Development Work Group will prepare for implementing a teaching for mastery approach which is embedded and sustained across the whole school. This will involve receiving support from Mastery Readiness Leads, and developing classroom culture and attitudes to maths that will support a teaching for mastery approach, both on the part of teachers and their pupils.

After the year-long programme, Mastery Readiness schools will be ready to progress into Development Work Groups and beyond.

There is no charge for participation in this programme. However, schools must ensure that staff are released to engage in the workshops and school visits, and that the headteacher attends events where appropriate. To find out more, including details of how to apply, click the More Info button to go to our website.

MORE INFO

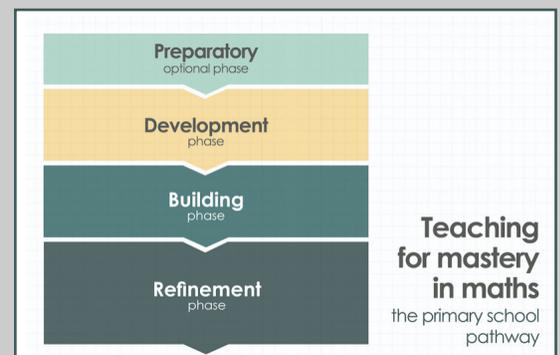
Primary Teaching for Mastery - Development

The Teaching for Mastery Programme is a professional development opportunity designed to support teachers like you to develop best practice in maths in your school. It is suitable for schools interested in implementing a teaching for mastery approach to maths.

Participation in a Development Work Group enables a school to start teaching for mastery in maths across the school. Work Groups are fully funded so there is no cost for participation. Thousands of primary schools in England have already become part of this popular programme

Participants will:

- Join a small group with other teachers from your local area
- Receive expert input from a Mastery Specialist
- Meet regularly, either online or face-to-face
- Share best practice and explore ideas with peer-to-peer support
- Receive bespoke support from the Mastery Specialist
- Lay foundations for the long-term development in teaching for mastery in maths in your school



MORE INFO

Cross-Curricular PD Opportunities for 2022/23

PRIMARY

SECONDARY

The Maths Hub Programme has PD opportunities for all teachers at all stages in their careers and across all phases. We are now looking ahead to the next academic year and are pleased to announce that applications have now opened via the NCETM for our PD projects for 2022/23. Follow the 'More Info' links for further details on the opportunities and how to apply on the NCETM website, or contact info@bbomathshub.org.uk to discuss the best programme for you and your department.

All of our Work Groups are free.

PD Lead Development and Accreditation Programme

NCETM Professional Development Lead Accreditation is designed for those who lead professional development for teachers of maths and who have existing commitments and responsibility for designing, leading and evaluating maths teacher professional development, and the potential to develop further.

Participants will:

- Develop knowledge of models of CPD for maths teachers
- Consider the themes and issues in teaching maths, and the implications of these in supporting other teachers
- Design a professional development programme, deliver it, and evaluate it
- Develop relationships with senior leaders to support a sustainable culture of maths CPD
- Increase their own subject knowledge and professional practice.

Participants will also have the opportunity to pay to work with the University of Chester and gain an academic award (PG Cert) for completing an enhanced version of the programme.

The deadline for applications is 20.05.22.

[MORE INFO](#)

School Development Lead Programme

This project is for teachers **leading change in a school or group of schools other than their own**, and will benefit those who have previous experience of developing leadership capacity in schools/groups of schools or who are new to the role.

Participants will:

- support schools, groups of schools or MATs to establish sustainable cross-school approaches to collaboration and development for maths teaching
- start to use collaborative Work Group models as one of their school development strategies
- incorporate new processes and models into their school development practice
- evaluate and review the effectiveness of specific maths school development models
- develop skills in driving improvement in maths, including developing the capacity of school leadership of maths
- know and understand of the challenges and barriers to school development in maths and how to tackle them
- know and understand effective approaches to teaching maths, including teaching for mastery.

The deadline for applications is 20.05.22.

[MORE INFO](#)

Secondary Work Groups

The Maths Hub Programme has PD opportunities for all teachers at all stages in their careers and across all phases. There are a few secondary projects still to start this year which are detailed below. We are also looking ahead to the next academic year and are pleased to announce that applications have now opened for some of our projects for 2022/23. Follow the 'More Info' links for further details on the opportunities and how to apply on the NCETM website, or contact info@bbomathshub.org.uk to discuss the best programme for you and your department.

All of our Work Groups are free.

Years 5-8 Continuity

Work Groups in this project aim to strengthen the transition from primary to secondary school by focusing on curriculum and pedagogical continuity over Years 5 to 8. Following the disruption to education caused by the Covid crisis, this transition is more crucial than ever.

A central aim is the promotion of cross phase communication between teachers to address issues of maths curriculum and pedagogical transition as distinct from pastoral considerations. A key feature will be understanding how best to prioritise key aspects of the curriculum to help ensure pupils have mastered the fundamental understanding and skills they need to underpin their progression through upper Key Stage 2 and into Key Stage 3.

Participants should be teachers of Years 5 to 8 in primary, secondary, middle school and all-through schools with some responsibility for curriculum development, e.g. maths leads / heads of department.

Linked 'families' of schools are encouraged to take part: ideally teachers from secondary schools and their associated primary schools will work together.

The BBO Hub is running a **final cohort of this group starting on 30 June** and we are looking for secondary schools to join the primary schools already registered to take part.

What are the benefits?

- Deepen your knowledge and understanding of the curriculum across KS2 and KS3 and the expectations of pupils at the end of each key stage.
- Understand the approaches which will support pupils as they move from KS2 to KS3.
- Make use of common approaches, representations and language across phases.
- Develop collaboration between primary and secondary colleagues on issues of curriculum and pedagogy.
- Understand what each year group needs to be ready to progress.
- Consider the importance of, and how to achieve, consistent mathematical vocabulary.
- Consider, for primary teachers, the conceptual knowledge that will serve pupils well later on.
- Explore how to prioritise the maths curriculum in upper KS2 and KS3 to get pupils' maths education back on track.



Participation involves cross-phase communication between teachers, and a key feature will be understanding how best to prioritise key aspects of the curriculum to ensure pupils have mastered the fundamental understanding and skills they need to progress successfully through upper KS2 and into KS3.

[MORE INFO](#)

[BOOK NOW](#)

Secondary Mastery Specialist Programme

Mastery Specialists are classroom practitioners who develop expertise in the mastery approach to teaching maths. Through rigorous and interactive training, they become experts in introducing and embedding mastery. After first developing a mastery approach in their own classrooms, they go on to support colleagues in their own and other schools.

Following the success of the Secondary Mastery Specialist Programme thus far, Maths Hubs, working in conjunction with the NCETM, are now seeking applications from secondary schools that wish to nominate 'lead teachers' to take part in an important three-year professional development programme leading to the designation of Secondary Mastery Specialist.



The deadline for applications is 20.05.22.

[MORE INFO](#)

Specialist Knowledge for Teaching Mathematics – Non Specialists - Cohort 2

Are you teaching maths outside your own specialism? Or is someone in your maths department a non-maths specialist? Of course, there's much more to teaching maths than knowing how to do the maths. And it's not always obvious how teaching skills from other subjects can be adapted for the maths classroom.

Develop mathematical subject knowledge and understand the pedagogy that underpins the teaching of it

If you are a headteacher or senior leader, and want to know more about the programme and its suitability for teachers in your school, watch this video.

Who can take part?

This programme is for non-specialist teachers of maths in state-funded schools who fit the following definition:

"A non-specialist teacher of mathematics is a teacher in a state-funded school or college that is currently teaching some mathematics or has commitment from a headteacher/executive head to teach some mathematics within the next year, who has not undertaken Initial Teacher Training (ITT) in mathematics."

What is involved?

The programme is aligned to the NCETM teaching for mastery pedagogy and is based on six key themes:

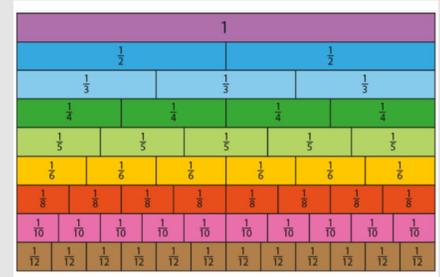
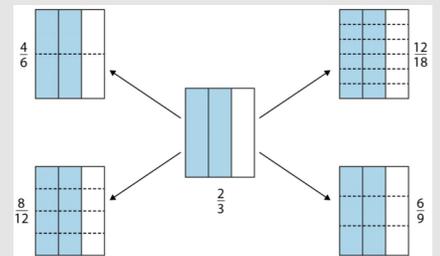
- Structure of the number system
- Operating on number
- Multiplicative reasoning
- Sequences and graphs
- Statistics and probability
- Geometry.

Participants will explore these themes, supported by an experienced secondary practitioner.

The NCETM have produced a flyer which summarises the programme and its benefits. Download it to share with colleagues.

Take part in the Work group

The second cohort is getting underway on **6 June** and will continue into the next academic year. There will be a blended mix of online and face to face meetings, the latter to be held at Cheney School in Headington, Oxford (OX3 7QH). For full details and to secure your place, click on the Book Now button.



[MORE INFO](#)

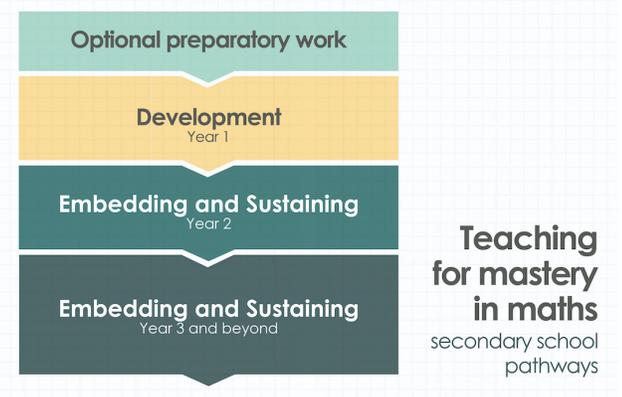
[BOOK NOW](#)

Secondary Teaching for Mastery - Development

Secondary maths teachers whose schools want to introduce and embed teaching for mastery can nominate two teachers (Mastery Advocates) to join a Work Group. You will be part of a locally-based group of teachers who meet regularly to develop professional knowledge and expertise, as well as receiving bespoke support.

In a Teaching for Mastery Work Group you will:

- collaborate with colleagues from other local schools to share best practice
- get individual school support and guidance from a local leader of maths education (LLME)
- take away ideas to help your students become more confident mathematicians, ready to tackle GCSEs and A levels
- introduce and embed teaching for mastery in your classroom and department



[MORE INFO](#)

Primary Mastery Taster Sessions

The aim of all Mathematics teachers is to enable their students to develop a deep understanding of Mathematics. BBO Maths Hub runs continuous professional development which trains and supports teachers to effectively use the pedagogies which lead to this deep understanding. The leaders of our work groups are all PD lead trained and active practitioners – they share what they use with their own students. The continuous nature of what we offer helps to embed what participants learn into their practice and also gives them time to plan how this will be disseminated to their department.

If you would like to find out more, experience some of the pedagogies we develop, discuss why they have an impact on learning and see a lesson where they are being used then please come along to one of our taster days. These are open to any maths teacher or member of the senior leadership team in our area not in a private school or a school who has already attended Developing Mastery or has a Mastery Specialist based there.

We are currently recruiting schools for our Developing and Sustaining Mastery Work Groups for next year, these taster days will allow you to find out more and speak to Mastery Specialists who have been developing this in their own schools for several years. Everything we run is free to attend and some of the longer term and more involved programmes also come with funding towards cover costs and bespoke support within your school. Please click on the links below for more information and to book your place via Eventbrite:

[17.06.22 – Waddeson Village Primary School](#)

[23.06.22 – St Edburg's CE Primary School, Bicester](#)



Primary Teaching for Mastery
'taster' Sessions

Secondary Mastery Taster Days

Supporting Teachers to Develop a Deep Understanding of Mathematics in Students' Minds

The aim of all Mathematics teachers is to enable their students to develop a deep understanding of Mathematics. BBO Maths Hub runs continuous professional development which trains and supports teachers to effectively use the pedagogies which lead to this deep understanding. The leaders of our Work Groups are all PD lead trained and active practitioners – they share what they use with their own students. The continuous nature of what we offer helps to embed what participants learn into their practice and also gives them time to plan how this will be disseminated to their department.

If you would like to find out more, experience some of the pedagogies we develop, discuss why they have an impact on learning and see a lesson where they are being used then please sign up to one of our taster days for which you can find the details below. These are open to any maths teacher or member of the senior leadership team in our area not in a private school or a school who has already attended Developing Mastery or has a Mastery Specialist based there.

We are currently recruiting schools for our two sustained work groups for next year, which develop mastery (a deep understanding of mathematics) in its entirety. These taster days will allow you to find out more and speak to Mastery Specialists who have been developing this in their own schools for several years.

Everything we run is free to attend and some of the longer term and more involved programmes also come with funding towards cover costs and bespoke support within your school.

We are holding 3 taster days this term on the following dates / locations, click on the relevant link to book your place now:

[Didcot Girls' School - Wednesday 8th June 9.00 am to 2.30 pm](#)

[The Marlborough School - Wednesday 8th June 9.30 am to 2.30 pm](#)

[Wycombe High School - Monday 20/6/22 9.30 am to 3.00 pm](#)

Upcoming Events and Opportunities

Want to know what Ofsted thinks good mathematics teaching is? Talk by Steve Wren - HMI Ofsted Lead Mathematics Inspector 16 May 4.00 - 5.30pm on Zoom

This event is for mathematics teachers from any stage of education and any members of their school's Senior Leadership Team from schools in the BBO Hub area to attend a talk by Steve Wren who is the current HMI Ofsted Maths Lead. This is a rare opportunity to learn what Steve thinks makes for good maths teaching and also get his thoughts on what strong departments might consider to facilitate this.

You will also have an opportunity to ask questions at the end.

Please note that HMI Ofsted will not allow us to record this presentation.

There are a limited number of tickets remaining for this event and **bookings close at midnight on Wednesday 11 May**. Click on the Book Now button to secure your place.



Steve Wren is Ofsted's subject lead for mathematics. He is a qualified teacher with extensive secondary school leadership experience, and most recently was director of key stage 3 in a large comprehensive school. As a specialist leader of education, he supported schools with subject leadership, assessment and school improvement. Steve is part of the curriculum unit and has been a subject leader in 2 large secondary schools. He has lectured on initial teacher training programmes and, as a county mathematics consultant, supported the work and development of provision across a diverse range of schools.

BOOK NOW

NETWORK MEETINGS (IN ASSOCIATION WITH THE AMSP)

Oxfordshire and Buckinghamshire Online Network

Tuesday 21st June - 4:30 - 6pm - **Building in Problem-Solving - Making Transition Easier**

In this session, will talk about how to build in problem solving at KS3 and KS4 in order to ease transition.

Please see <https://amsp.org.uk/events/details/9520> for more details and to register for a place.

SUMS (Steps to University for Mathematical Students) enrichment days

This one-day event is for enthusiastic Year 12 female maths students who are considering studying maths or a closely-related subject at university. (Non-binary and trans students are most welcome.) We are hosting this event at different universities on different dates.

Please select the most appropriate venue (see <https://amsp.org.uk/events/details/9596>).

Face to Face Network Meeting at Little Heath School

Wednesday 18th May - 4:15 - 5:45pm - **Using Desmos For Statistics**

In this session we will be looking at how you can use Desmos graphing calculator to work with statistics, including finding summary statistics and drawing a variety of diagrams. Yes! Desmos does more than draw graphs, so come and find out a bit more. Computers will be provided for use on the evening as well as tea and biscuits and a chance to chat with other teachers.

Please book here: <https://amsp.org.uk/events/details/9718>.