

Salop & Herefordshire Maths Hub
Secondary Update
14 November 2017

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[Booking Form](#)

Please use the [online booking form](#) for all bookings.
All work groups are free, with cover costs of up to £180 per day for teachers in their first two years of teaching.

[Year 5-8 Continuity Workgroups](#)

Have you read the EEF ['Improving Mathematics in Key Stages Two & Three' Report?](#)

1 Use assessment to build on pupils' existing knowledge and understanding	2 Use manipulatives and representations	3 Teach pupils strategies for solving problems	4 Enable pupils to develop a rich network of mathematical knowledge	5 Develop pupils' independence and motivation	6 Use tasks and resources to challenge and support pupils' mathematics	7 Use structured interventions to provide additional support	8 Support pupils to make a successful transition between primary and secondary school
<ul style="list-style-type: none"> Assessment should be used not only to track pupils' learning but also to provide teachers with information about what pupils do and do not know. This should inform the planning of future lessons and the focus of targeted support. Effective feedback will be an important element of teachers' response to assessment. Feedback should be specific and clear, encourage and support further effort, and be given sparingly. Teachers not only have to address misconceptions but also understand why pupils may persist with errors. Knowledge of common misconceptions can be invaluable in planning lessons to address errors before they arise. 	<ul style="list-style-type: none"> Manipulatives (physical objects used to teach maths) and representations (such as number lines and graphs) can help pupils engage with mathematical ideas. However, manipulatives and representations are just tools: how they are used is essential. They need to be used purposefully and appropriately to have an impact. There must be a clear rationale for using a particular manipulative or representation to teach a specific mathematical concept. Manipulatives should be temporary: they should act as a 'scaffold' that can be removed once independence is achieved. 	<ul style="list-style-type: none"> If pupils lack a well-rehearsed and readily available method to solve a problem they need to draw on problem-solving strategies to make sense of the unfamiliar situation. Select problem-solving tasks for which pupils do not have ready-made solutions. Teach them to use and compare different approaches. Show them how to interrogate and use their existing knowledge to solve problems. Use worked examples to enable them to analyse the use of different strategies. Require pupils to monitor, reflect on, and communicate their problem solving. 	<ul style="list-style-type: none"> Emphasise the many connections between mathematical facts, procedures, and concepts. Ensure that pupils develop fluent recall of facts. Teach pupils to understand procedures. Teach pupils to consciously choose between mathematical strategies. Build on pupils' informal understanding of sharing and proportionality to introduce procedures. Teach pupils that fractions and decimals extend the number system beyond whole numbers. Teach pupils to recognise and use mathematical structure. 	<ul style="list-style-type: none"> Encourage pupils to take responsibility for, and play an active role in, their own learning. This requires pupils to develop metacognition – the ability to independently plan, monitor and evaluate their thinking and learning. Initially, teachers may have to model metacognition by describing their own thinking. Provide regular opportunities for pupils to develop metacognition by encouraging them to explain their thinking to themselves and others. Avoid doing too much too early. Positive attitudes are important, but there is scant evidence on the most effective ways to foster them. School leaders should ensure that all staff, including non-teaching staff, encourage enjoyment in maths for all children. 	<ul style="list-style-type: none"> Tasks and resources are just tools – they will not be effective if they are used inappropriately by the teacher. Use assessment of pupils' strengths and weaknesses to inform your choice of task. Use tasks to address pupil misconceptions. Provide examples and non-examples of concepts. Use stories and problems to help pupils understand mathematics. Use tasks to build conceptual knowledge in tandem with procedural knowledge. Technology is not a silver bullet – it has to be used judiciously and less costly resources may be just as effective. 	<ul style="list-style-type: none"> Selection should be guided by pupil assessment. Interventions should start early, be evidence-based and be carefully planned. Interventions should include explicit and systematic instruction. Even the best-designed intervention will not work if implementation is poor. Support pupils to understand how interventions are connected to whole-class instruction. Interventions should motivate pupils – not bore them or cause them to be anxious. If interventions cause pupils to miss activities they enjoy, or content they need to learn, teachers should ask if the interventions are really necessary. Avoid 'intervention fatigue'. Interventions do not always need to be time-consuming or intensive to be effective. 	<ul style="list-style-type: none"> There is a large dip in mathematical attainment and attitudes towards maths as children move from primary to secondary school. Primary and secondary schools should develop shared understandings of curriculum, teaching and learning. When pupils arrive in Year 7, quickly attain a good understanding of their strengths and weaknesses. Structured intervention support may be required for Year 7 pupils who are struggling to make progress. Carefully consider how pupils are allocated to maths classes. Setting is likely to lead to a widening of the attainment gap between disadvantaged pupils and their peers, because the former are more likely to be assigned to lower groups.

The two work groups below include professional development on 7 of the 8 report recommendations, to help pupils with coherent primary to secondary maths progression:

- 1) [Mastering Mathematics Through Deep Conceptual Understanding](#)
- 2) [Bar Modelling and Multiplicative Reasoning](#)

Please ask the Maths Subject Leaders from your local Primary Schools to book their Year 5 or Year 6 teachers at the same time as your booking

[A Level Active, using Technology](#)

Martin Withington and Richard Stakes will be continuing to support schools in preparing for the new Maths A Levels through this work group

Teachers from schools and colleges that are established members of this group will continue as part of the group, whilst new participants are welcome to join, using the [booking form](#). The next two workshop dates are Thursday 14th December & Friday 6th July at The Grove School, Market Drayton.

The December meeting will examine ways of analysing the big data set, calculator use and looking at various Pure and Applied topics, including both Mechanics and Statistics.

[Mathematical Thinking for GCSE](#)

This [work group](#) will be based at Idsall School, Shifnal on three Fridays - dates TBC. Please email mathshub@tpstrust.co.uk if interested in joining this group.

[Exploring the Explicit Teaching of Problem Solving Skills](#)

This Wolverhampton based collaborative work group starts on 30th January. It is being jointly promoted by Central, North Mids and Peaks & Salop and Herefordshire Maths Hubs, so we advise prompt booking.

[9-1 GCSE Maths - Subject Knowledge Enhancement](#)

We are now taking bookings for these two work groups:

[Teaching New GCSE Mathematics Resit / Foundation Tier GCSE Maths](#)

In Shrewsbury, with Sally Bamber on 16th May, 20th June and 26th June

[Brushing Up Subject Knowledge for GCSE Maths - Topics new to Higher Tier](#)

In Leominster, with Ruth Tanner, on 14th June and 5th July.

[Underground Mathematics - Resources to address the requirements of new A Level](#)

We are hosting MEI's Underground Mathematics one day course in Telford on Friday 1st December.

[Click here](#) for further information and booking through MEI.

[Teaching for Mastery](#)

[Maths Hubs / NCETM Secondary Assessment Materials](#)

Have your department team looked at these [new Secondary assessment materials?](#)

You are probably already familiar with the highly rated [Primary materials](#), which have been downloaded more than 1.2 million times, and are being used by most Primary Schools.

Our two Secondary TfM work groups (Hereford and Telford) are full. Please email tpstrust.co.uk if interested in TfM work groups for next year.

[Network Meetings](#)

We recommend that Maths Subject Leaders take an active part in local Network meetings.

[Herefordshire](#)

Christine Watson - Monday 15 January 2018, 4.30pm to 6pm

Christine Watson - Monday 12 March 2018, 4.30pm to 6pm

Bishop of Hereford's Bluecoat School, Hereford

- Using manipulatives to support low attaining students with calculation

Please use the Hereteach [online booking form](#)

[Shropshire](#)

Kev McKie - Thursday 1 February 2018, 9.15am to 12.00pm

Shrewsbury Training and Development Centre
Further details and booking details [here](#)

Telford

Richard Stakes & Anthony Hedley - Wednesday 6th December 2017, 2.30pm to 5.30pm
Telford Conference Centre, University of Wolverhampton, Priorslee, Telford

- “GCSE Boost to 7+” course in Telford for Year 11 students - starts January
- GCSE 9-1 - Next steps
- Teaching for mastery assessment materials

Please use the FMSP [online booking form](#)

Useful Links:

- [Assessment materials - Secondary Teaching for Mastery](#)
- [EEF Report - Improving Maths in Key Stages Two and Three](#)
- [FMSP Student Events](#)
- [Language of Mathematics in Science Guide](#)
- [Marking Guidance](#)
- [Maths Glossary](#)
- [NCETM Qualifications and Curriculum Microsite](#)
- [NRICH Teacher Newsletters](#)

Please use the [online booking form](#) for all bookings, unless otherwise stated.

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Follow us on Twitter: [@SandH_MathsHub](https://twitter.com/SandH_MathsHub)

Email mathshub@tpstrust.co.uk if you wish to be added to our database to receive fortnightly updates directly.

Can't find the answers?

The webpage also includes our twitter feed.

www.mathshubs.org.uk/salopandhereford/work-groups if you cannot find the answers to your queries on our website mathshub@tpstrust.co.uk please email Alison Osborn, our Hub Coordinator. Please follow [@SandH_MathsHub](https://twitter.com/SandH_MathsHub) for updates.

Graham

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