MathsHUBS
North West Three

September 2019

Autumn Newsletter

North West Three Maths Hub

Maths Hub programme reach and increased capacity

The Maths Hub programme has expanded and developed due to the nature of it's success in engaging an overwhelming amount of schools across the country. Last term, a review took place in conjunction with the DFE, NCETM and Maths Hubs to redefine areas. Ensuring all areas across the country now have a specific Maths Hub that they can engage with for all aspects of maths training and development. All Maths Hubs have been realigned.

NW Maths Hub 3 will now serve schools in the following areas: **St Helens, Wigan, Liverpool, Knowsley and Sefton**.

NW Maths Hub 3 has been supporting the development of a new **Cheshire/Wirral Hub**. This hub has now begun its work and will serve: Halton, Cheshire (West, East and Chester) and Wirral.

Both Maths Hubs will continue to work closely together on all future National and local projects. In addition to operating and working collaboratively with the other northern Maths Hubs and the Maths Hubs network as a whole!

For further information or clarification please don't hesitate in contacting:

Lisa Bradshaw, Maths Hub NW3 lead.
Lisa.bradshaw@three-saints.org.uk

Teacher of the Year: Congratulations to Darren Partington (Northwood Community Primary School, Kirby), Cohort 4 Primary Teaching For Mastery Specialist, who won 'Teacher of the Year' in the recent Knowsley Educations Awards 2019, we are extremely proud to have Darren as part of our Primary Mastery Specialist team!

Primary and EYFS National and Local Projects

'Teaching for Mastery' – NW Maths Hub 3 supporting schools in their journey to develop an understanding of Mastery and working towards achieving this for all!

Mastery Readiness

The programme, led by a Mastery Readiness Lead, Claire Martin, began in summer 2018.

Overview

The maths lead and another teacher will attend training events throughout the year, averaging out at two per term. There will be two visits per term from the Mastery Readiness Lead to offer tailored advice and support.

Benefits

- The training includes an introduction to mastery, how to prepare a school to be ready to implement teaching for mastery, initial steps, both in leadership and in classroom teaching, and strategies to overcome potential barriers.
- Support for the head teacher in addressing leadership issues related to mathematics and contributing to raising standards.
- Opportunity to work closely with other schools also developing mastery readiness.
- Automatic acceptance onto the fully funded National Teaching for Mastery Programme after the initial 12 months.

So far schools from Halton, Wirral, Cheshire and Knowsley have benefitted from being part of this fully funded programme.

The next phase of this programme, starting in September has exceeded capacity and will target schools in Liverpool, Wigan, St Helens and Sefton areas.

This programme is FREE of Charge.

More information: http://bit.ly/2IKsQJ7

Teaching for Mastery Specialist Teachers

20 Mastery specialist teachers are currently working on behalf of NW Maths Hub 3 supporting 239 schools on their Mastery Journey via the National TFM programme. Cohort 5 Mastery specialists will begin their training in September 2019.

Primary Maths Teaching for Mastery National Development Programme

The programme has already transformed maths teaching in thousands of schools, enabling children to develop deeper and more sustainable mathematical understanding. It is just as relevant for schools with a history of good Key Stage 2 maths results, as for those which struggle. More information can be found on the **NCETM website**

The CPD programme is free, with a £1,000 grant to subsidise supply cover when teachers attend local workshops run by trained Mastery Specialists, and financial help to buy maths textbooks. Applications are welcome from groups of schools, for example in MATs, as well as individual schools.

NW Maths Hub 3 have recruited **66 schools** from across Wigan, Sefton, Liverpool and Knowsley.
These schools will attend a launch on Thursday 12th September at The St Helens Hotel.

This programme is FREE of Charge.

Primary Mastery Specialist Recruitment - Cohort 5

Congratulations to the following teachers who will begin their Mastery Specialists National Training and development in September 2019 working on behalf of NW Maths Hub 3:

Michelle James - Wigan

Julie Morris - Wigan

Mike Rigby - Wigan

Louis Reid - Liverpool

Sarah Bailey - Sefton

Tanasha Robinson - Sefton

Roisin Dean - Knowsley

We look forward to having them as part of our successful, dedicated team!

Embedding Mastery Programme

Schools that have been previously involved in the National Teaching for Mastery Development programme have been invited to participate in this work group.

Essential Criteria:

Each work group has an identified coordinator who ensures that:

- The group has an action plan
- The plan has to have agreed outcomes which includes clear identification of the mathematics or pedagogy to be covered
- All those in the group are responsible for reporting on the impact in their own school
- There is a point of contact with the hub
- There is a focus on leadership embedding TfM within their schools
- There is engagement with head teachers that leads to schools having structures that ensure that teaching for mastery can be developed throughout the school
- There are opportunities for head teachers to network with each other
- There are gap tasks for schools to do that are about embedding TfM across the school
- If teachers cannot attend the TRG, they will send another teacher in their place. There must be a representative.
- There will be some TRG events that include observation of lessons

Desirable Criteria

- There are opportunities for collaborative planning
- The Teaching for Mastery Lead or a Mastery Specialist may attend a group event-not leading but observing
- There is a launch meeting to explain the purpose of the programme and for the work groups to write their action plans
- Include research informed approach in classroom practice, share research or read relevant articles

Overarching goals:

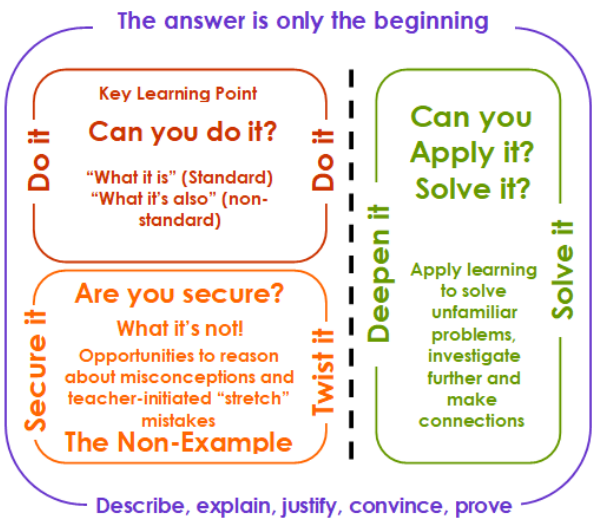
- To further develop and embed Teaching for Mastery pedagogy in the classrooms of Work Group participants
- To further develop and embed Teaching for Mastery pedagogy in the classrooms of all (or specific year group) teachers
- To further develop and embed Teaching for Mastery pedagogy through strategic, organisational and systematic changes

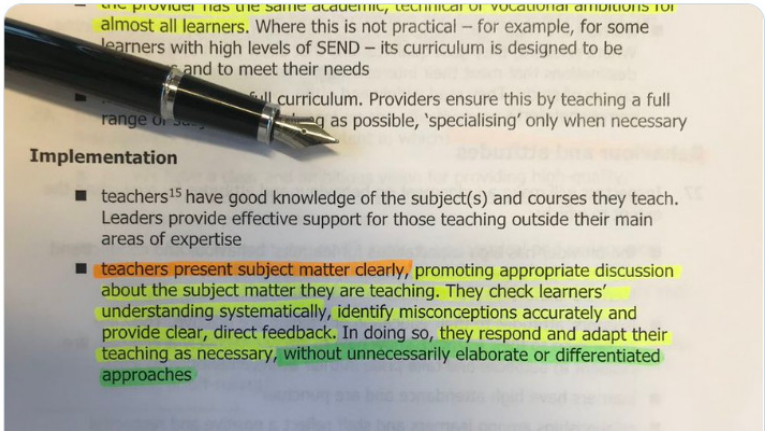
This group is FREE of Charge.

For further information please contact Sarah McIlroy (Primary Mastery Lead) sarah.mcilroy@three-saints.org.uk

In 2019-20 the following schools will be engaged in the next stage of the TFM programme:

7 Sefton, 8 St Helens, 1 Manchester, 1 Knowsley, 4 Wigan, 8 Liverpool and 20 Warrington. These are schools that have previously engaged in the TFM Development work group schools programme in 2018-19.




almost all learners. Where this is not practical – for example, for some learners with high levels of SEND – its curriculum is designed to be and to meet their needs

curriculum. Providers ensure this by teaching a full as possible, 'specialising' only when necessary

Implementation

- teachers[15] have good knowledge of the subject(s) and courses they teach. Leaders provide effective support for those teaching outside their main areas of expertise
- teachers present subject matter clearly, promoting appropriate discussion about the subject matter they are teaching. They check learners' understanding systematically, identify misconceptions accurately and provide clear, direct feedback. In doing so, they respond and adapt their teaching as necessary, without unnecessarily elaborate or differentiated approaches

Ofsted - The education inspection framework
May 2019

China-England Exchange visit

70 Primary Teaching for Mastery Specialists (2 from each hub) and 35 Secondary Specialists (1 from each hub) have been selected to visit Shanghai in November 2019.

The return visits will take place in March 2020 and will last for a fortnight.

Darren Partington and Rosie Ross (Primary TFM specialists) and Amanda Sharples (Secondary TFM specialist) will represent NW Maths hub 3 during this year's prestigious, annual exchange programme.

Background to the programme

During the visit of Nick Gibb, Minister of State for Schools, to China in March 2016, an "in principle" understanding was reached between the United Kingdom Department for Education and the Shanghai Municipal Education Commission to deepen policy exchange and extend their co-operation on an exchange of teachers of mathematics between England and Shanghai Municipality.

This Memorandum of Understanding (MOU) sets out the continuation of the maths teacher exchange during 2018/19 and 2019/20, as agreed by the United Kingdom and China when the UK Prime Minister visited China in January 2018 and identifies the revised elements of the exchange. This MOU was signed in November 2018 by Paul Kett, Director General at the Department for Education, during the mastery specialists' visit to Shanghai.

EYFS - Developing Mathematical fluency to raise expectation/number focus and progression

A significant amount of time has been spent by a number of EYFS practitioners on developing materials through classroom research and practice. An approach that is based on enrichment in conceptual understanding (rather than acceleration through mathematical content) has been designed and trialled by three teachers.

Research has been done into children's accumulation of early number concepts, with particular emphasis placed on the work of American based researcher Arthur Broody.

Within the materials designed, all children are expected to progress at a broadly similar pace through content, and differentiation is done through the processes and products expected, as well as through the development of thinking skills. The approach has been identified by all involved as being highly effective, with a particular impact seen amongst struggling learners.

This programme has been successfully rolled out to over 170 settings and is now on phase 6 of the roll out which begins in Autumn 2019.

EOI for phase 7 (to begin in Spring 2020) will be taken in September 2019.

The cost of this programme is now free of charge due to the expansion of the prgramme and feedback provided.

Email **lisa.bradshaw@three-saints.org.uk** if you are interested in being part of this project in the future.

For further information in relation to National and Local work streams that Maths Hub NW3 is involved in please visit:

http://www.nwmathshub3.co.uk

Alternatively, please don't hesitate to contact:

Lisa Bradshaw (Maths Hub Lead) lisa.bradshaw@three-saints.org.uk

Sarah McIlroy (Primary Mastery Lead) sarah.mcilroy@three-saints.org.uk

Lindsay Porter (Secondary Mastery Lead) lindsay.porter@three-saints.org.uk

Sarah Boyle (Post-16 Lead) sarah.boyle@calderstones.co.uk

Sarah Makin (Admin) sarah.makin@three-saints.org.uk

Debs Ayerst (Online Services Admin) debsayerst@nwmathshub3.co.uk

Excellent Maths Teacher Programme

We have now trained 150 teachers/Maths leads from across the NW in supporting them to build leadership capacity within their own school and beyond. Learning from the programme has been used to develop the participant and other teachers within their context ultimately impacting positively on them as a leader, staff in the school and pupil outcomes and attitudes to maths. The programme has proven to have significant impact for the staff receiving the training in terms of personally and professionally and has ultimately impacted on improving the provision for pupils that they teach.

This is an extremely popular programme and there are only limited places available. Please email Lisa Bradshaw if you or a member of your staff is interested in being part of this to begin in September 2019. The first session will take place on Thursday 19th September 2019.

The overall aim of the programme is to share and develop effective mathematics practice across the NW providing a school led approach to improving teaching and leadership of mathematics.

For further details about booking on the programme for 2019-20 see here: **http://bit.ly/2koXYOp**

To book a place, please contact Paula Foster: **paula.foster@three-saints.org.uk**

Numberblocks Support Materials

NCETM have been expanding their support materials for the CBeebies programme Numberblocks, which now cover all of Series One. They've also added two documents giving an overview of each series, the storylines, and the mathematics addressed. **To view the resources: https://www.ncetm.org.uk/resources/52060**

Primary Professional Development Materials from NCETM

Our popular mastery professional development resources for primary teachers have now been enhanced for number: addition, subtraction, muliplication and division so that there's something for every year group. The materials cover the whole school year for every year group. **To view the resources: https://www.ncetm.org.uk/resources/46689**

EYFS Progression Charts - Now Available

There are **six key areas of early mathematics learning**, which collectively provide a platform for everything children will encounter as they progress through their maths learning at primary school, and beyond:
https://www.ncetm.org.uk/resources/52500

Follow us on Twitter **@NWmathshub3**

Intervention in a Mastery Context

NW Maths Hub 3 has now trained 74 primary schools across Halton, Cheshire, Knowsley, Liverpool, Wirral and West Lancs, involving 194 participants in the Intervention In a Mastery Context programme (IMC).

This involves the teacher and TA, associated with the same class supporting each other to diagnose the mathematical gaps that existed within their class and being taught how to 'plug the gaps'. This intervention programme is written as a 'Keep up not catch up' intervention programme.

The expectation of the programme:

- The teacher and TA, working in the same year group, will attend ALL 3 days of face-to face training.
- It is aimed at Y3, Y4 and Y5 teachers/TAs.
- After each face-to face day the Teacher/TA will receive a ½ day release session to complete the diagnostic activities.
- Select a class that has the highest % of children below age- related expectations
- Ideally the TA will be strong and have some experience of delivering intervention, however this is not essential.

This programme is now free of charge and is being offered to schools in the following areas: Knowsley, Sefton and Wigan

IMC Feedback: *"Following the Intervention in a mastery context course, I found that I had much more of an interest in the subject and I feel that my teaching of the subject has mirrored this enthusiasm. Part of the reason for this was the way in which you delivered the course."* Matt Greasby, Pear Tree Primary School

Primary Maths and SEND (Innovation)

Rationale:

Building on findings and feedback from the secondary SEND Work Group, it is evident that approaches to teaching, learning and assessment of SEND pupils need further exploring, particularly in primary to ensure that SEND pupils are included in the whole school approach to TfM.

A new programme will be developed focusing on P-scales and PIVATS (Performance Indicators for Valued Assessment and Targeted Learning) and key findings from the Rochford review.

The project aims to:

- SENCOs/classteacher will develop, trial and evaluate approaches to teaching, learning and assessment of SEND pupils who are struggling to achieve mastery in the fundamental concepts which underpin all aspects of maths focusing particularly on P-scales and PIVATS (Performance Indicators for Valued Assessment and Targeted Learning)
- SENCOs/classteacher will develop pedagogical knowledge and understanding of the early stages of children's development of 'Number Sense'
- Developing specialist subject knowledge when working with children with SEND
- Developing teachers understanding of how specific learning difficulties, e.g. dyscalculia, can affect pupil's mastery of fundamental concepts
- Develop the use of manipulatives and concrete modelling for SEND pupils
- Use action research in teaching for mastery in the SEND context
- Schools will develop a systematic and coherent approach to SEND provision as part of the whole school's mastery curriculum, so the participants will engage with all other staff, SLT, teachers and TA's to share their experiences and outcomes

- Schools will engage with parents to support their confidence and skills in supporting their child's learning in maths at home through games and activities
- Increase in SEND pupils confidence and attainment in mathematics due to effective teaching approaches. This will be evaluated using the Sandwell Early Numeracy Test pre and post programme for 3 case study pupils

10 schools will be involved in this programme from the following areas: **Sefton, St Helens, Liverpool, Wigan and Knowsley**. The programme will be **FREE of Charge**, this year whilst still in its development phase.

The programme will be led by **Linda Lavagna-Slater**

Target Audience: SENDCOs, KS1 and 2 Class teachers

Programme outline:

Participants will attend 1 full day and 3 half day development meetings to introduce, review and guide the programme.

Autumn term 2019

Develop programme with identified WG leads; Day 1 (TfM, assessment, SpLD, counting focus)

Spring term 2020

January ½ day (Mathematical language focus); February ½ day (Number sense and fluency focus); March ½ day (Early calculation focus)

During the programme participants will be given opportunities to:

- Develop an understanding of the fundamental concepts which underpin mathematics learning and how pupils with specific difficulties experience particular difficulties in making progress and mastering these concepts.
- Develop strategies' for addressing misconceptions or misunderstandings around the fundamental concepts
- Develop strategies to aid retention of understanding
- Support teaching and learning through the use of concrete modelling and manipulatives
- Be supported in disseminating the ideas and practices to the whole school staff
- Be part of and contribute to a collaborative and supportive network of teachers
- Prepare and run parent workshops to enable them to try out and enjoy 'mastery at home' activities with their children

If you are interested in securing a place on the Primary Maths and SEND programme please contact: Lisa Bradshaw (Maths Hub lead) – lisa.bradshaw@three-saints.org.uk

Maths Hubs - the overall aim:

All Maths Hubs working together to support primary practitioners through to post 16 to have a chance to change/influence maths education across the country.

Primary Maths Subject Knowledge Enhancement CPD Sessions:

Coming up in the Autumn term:

Implications of the Mathematics Tests Post 2018 - Headteacher / SLT Briefing
Tuesday 17th September 2019 8.30 - 11am

Teaching Times Tables - Preparing to Test

LKS2: Tuesday 24th September 2019 9.00-12 noon

UKS2: Tuesday 24th September 2019 1 - 4pm

Planning Differentiation and Challenge - Year Group Mathematics Support

1st session - Y1 25th Sept 9 - 3.30pm

Cost of 1 day CPD event is £150 per delegate, including all course materials and refreshments
Cost of 1/2 day CPD event is £70 per delegate, including all course materials and refreshments

To book places on any event contact: **paula.foster@three-saints.org.uk | 07383089909**

For full details of all our maths CPD visit: **http://bit.ly/2ZbXFor**

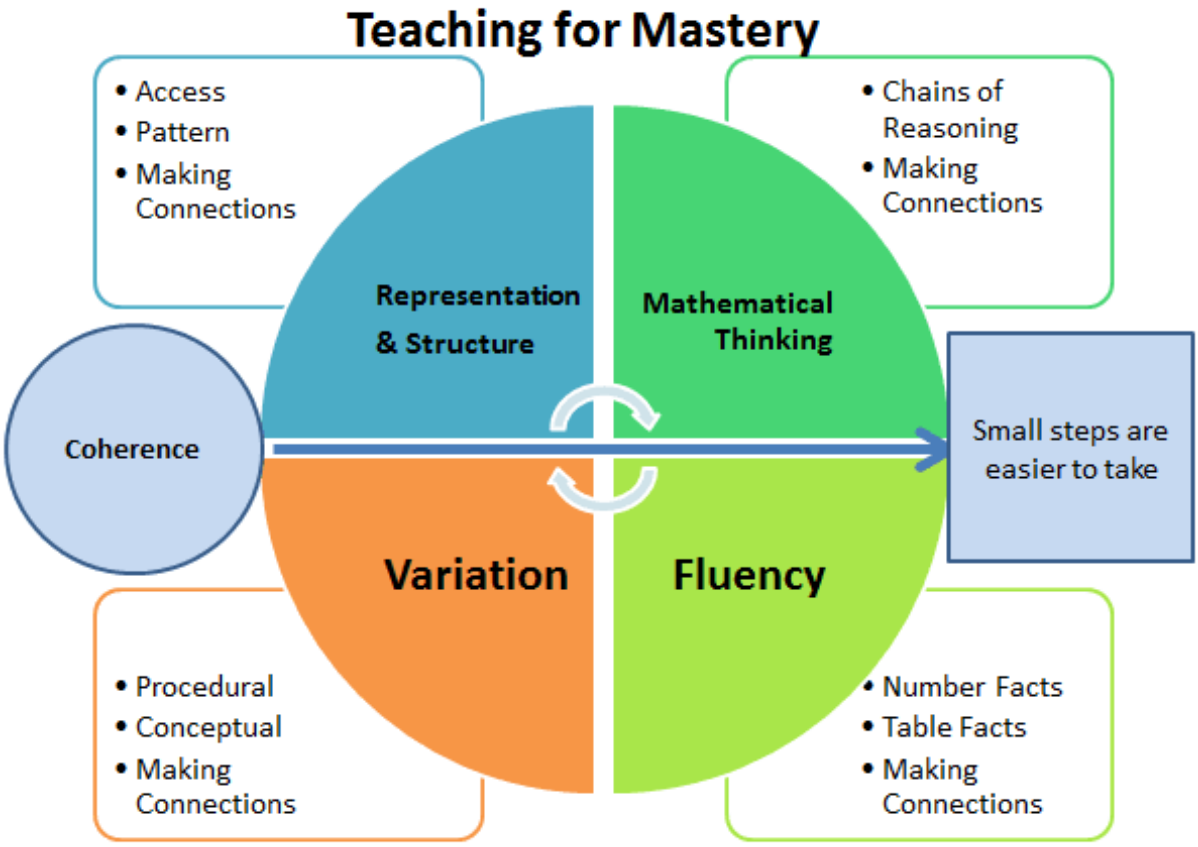
Primary Maths Subject Leader Network:

Friday 27th September 2019 9.00am – 3.30pm
St Helens Hotel, Linkway West, St Helens

Implications of 2018-19 tests; Mathematical updates and current thinking.
Tara Loughran and Lisa Bradshaw
Mathematics and SEND and an overview of the Intervention in a Mastery context programme as delivered by NW Maths Hub 3
Session delivered by Linda Lavagna-Slater

Cost of 1 day CPD event is £150 per delegate, including all course materials and refreshments

To book places on any event contact: **paula.foster@three-saints.org.uk | 07383089909**



Alin says, 'If I start at 5 and count in fives I will say the number 100.'
Is he correct?

Explain your reasoning.

Sita says, 'If I start at 17 and count in twos I will say the number 28.'
Is she correct?

Explain your reasoning.

NCETM Assessing Mastery Y1

Make each number sentence correct using =, > or <.

$\frac{3}{4}$	◯	$\frac{1}{2}$
$\frac{3}{8}$	◯	$\frac{1}{2}$
$\frac{3}{4}$	◯	$\frac{3}{8}$

$1\frac{3}{4}$	◯	$2\frac{1}{2}$
$\frac{3}{2}$	◯	$1\frac{1}{2}$
$3\frac{3}{4}$	◯	$3\frac{3}{8}$

$\frac{2}{4}$	◯	$\frac{1}{2}$
$\frac{2}{5}$	◯	$\frac{4}{10}$
$\frac{2}{5}$	◯	$\frac{5}{10}$

NCETM Assessing Mastery Y5

Y5-Y8 Continuity Programme

This programme includes: 3 face-to-face training days and 2 school visits. The programme is aimed at Y5, 6, 7 and 8 practitioners. The programme is being facilitated by a highly experienced Secondary Maths Lead - Lindsay Porter and Primary Maths SLE - Cormac McCaughley.

Sessions include:

- Sharing of work samples- cross phase moderation/standardisation- expectations explored
- Learning walks- school based focused visits
- Agreeing common, precise mathematical language
- CPD opportunities for the development of teacher subject knowledge and activity ideas around the four areas of calculation, algebra and fractions
- Teaching for Mastery- how to incorporate the 5 big ideas- exemplification and expectation
- CPA models used and scaffolds explored to ensure appropriate support and challenge is being provided across the two key stages
- Identifying gaps and next steps.

KEY RESOURCE - to support the EEF Improving Maths in Key Stages 2 & 3 guidance report, a Red Amber Green (RAG) self-assessment guide has been published. It sets out what 'ineffective', 'improving' & 'exemplary' practice can look like for each recommendation: https://bit.ly/2Mv4rUJ
This will be used as part of the project.

This project is free of charge.

This work group will run again in 2019-20 with a focus on Wigan, St Helens, Knowsley, Liverpool and Sefton areas.

Useful links include:

NCETM: https://www.ncetm.org.uk/

North West 3 Maths Hub website: http://www.nwmathshub3.co.uk/

Nrich: http://nrich.maths.org

Maths No Problem: http://www.mathsnoproblem.co.uk/

Maths Associations: http://www.nwmathshub3.co.uk/associations.html

CMSP: http://www.core-maths.org

MEI: http://www.mei.org.uk/

Power Maths: https://www.pearsonschoolsandfecolleges.co.uk/Primary/Mathematics/AllMathematicsresources/Power-Maths/Power-Maths.aspx

AMSP: http://furthermaths.org.uk/amsp

Teaching Schools Council: https://www.tscouncil.org.uk/

ACME: http://www.acme-uk.org/home

Ofsted: http://www.ofsted.gov.uk

Secondary National and Innovation Projects

Teaching for Mastery NCP - Mastery Lead Teachers and Work Group Schools

In 2019/20 all Maths Hubs are participating in a Network Collaborative Project addressing secondary mathematics teaching for mastery. As part of this project, Secondary Mastery Specialists in each hub area will be offering support to schools interested in developing teaching for mastery approaches in their maths departments. Each specialist who has completed the second year of their support and development programme will work with two departments. Maths Hubs are therefore now looking to recruit schools and their maths departments to participate in this exciting and innovative project as members of these Work Groups.

More information about the secondary teaching for mastery Work Groups is available on the NCETM website.

What is involved with being part of the Work Group?

Two teachers from each of two schools will become 'Mastery Advocates' in their own departments and will form the Work Group. They will work closely with a Secondary Mastery Specialist to understand the principles and practices associated with teaching for mastery and will begin to work in their own classrooms and then with teachers within their own departments to embed these principles and practices with the support of the specialist. Work will initially begin in Key Stage 3, but it is intended that this will extend to Key Stage 4.

Work will be bespoke for each department, tailored to the needs of the teachers and their own stages of development, but is likely to include:

- Mastery Specialists leading professional development sessions with the four Mastery Advocates (2 from each school) to enable them to understand the principles and practices associated with teaching for mastery
- Mastery Specialists supporting the Advocates to enable them to run professional development sessions for their department colleagues; this could include shared planning (and possibly co-leading) of sessions, with the intention that the Advocates take the leading role in working with their departments
- Advocates observing the secondary Mastery Specialist in the Specialist's own school
- The Mastery Specialist observing and giving feedback to Advocates – this might be of, and following, a lesson, a professional development session, a departmental meeting or a planning meeting
- Joint planning of individual lessons, sequences of lessons or longer units of work
- Mastery Specialists working alongside Advocates to support other departmental members, as appropriate
- Mastery Specialists working alongside Advocates to develop schemes of work and other departmental systems and structures to allow for a full teaching for mastery approach.

One of the Mastery Advocates from each school should be an experienced teacher with substantial responsibility in the department, and the drive and authority to lead change. This could be the Head of Department or Second in Department, the Key Stage 3 Lead or someone with a similar role.

The following schools will be involved in the programme for 2019-20: **Cansfield (Wigan), St Julies (Liverpool), Sutton (St Helens), Cardinal Heenan (Liverpool), St Francis of Assisi (Liverpool) and Cardinal Newman (Liverpool).**

Congratulations to the new Cohort 4 Secondary Teaching for Mastery Specialists:

Jade Dickenson - Atherton Community School, Wigan

Emma Dunbavand - St Augustines, St Helens

Mark Donga - West Derby High, Liverpool

Danielle Woodcock - Birkdale High School, Sefton

Challenging Topics at GCSE

What are the strategic goals of the Maths Hub for this project?

To support schools and colleges to address the challenge of teaching the 9-1 GCSE. In particular to explore approaches to teaching a chosen topic that proved challenging in the new GCSE, and also improve department professional development processes for doing this.

Through this we will explore and evaluate at these levels:

- What approaches work well in the classroom?
- What approaches work well in supporting department PD?
- What strategies are effective at Work Group level?

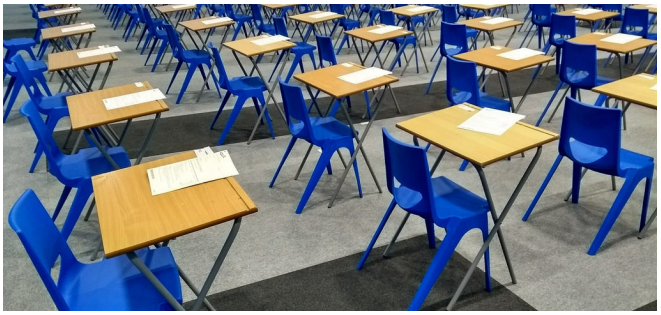
The aim will be for teachers to:

- appreciate the importance of looking further back in the locus of teaching rather than 'fire-fighting' in KS4
- to analyse and unpick teaching issues underpinning some of the challenging topics and gain a deeper understanding of the pre-requirements for teaching them including the importance of pedagogical approaches
- understand and consider the implications for addressing these issues both in the immediate teaching of pupils demonstrating those difficulties but also the longer-term development of those skills across the curriculum
- plan and teach more effective lessons that identify and address pupils' difficulties in relation to certain challenging topics
- consider and implement changes to teaching across KS3 into KS4 so that pupils develop a more secure and deep understanding of those particular challenging topics.
- work collaboratively with colleagues both within school and outside to address these issues

This work group is FREE of Charge to all schools.

Schools chosen to participate in the Work Group will commit to the following expectations:

- Participating teachers will attend 4 half day workshops
- Teachers will fully engage in all tasks and development activities in between meetings
- Teachers will contribute experiences, ideas and resources to develop pedagogy around the chosen challenging topic



Secondary Heads of Department Meetings

Lindsay Porter (AQA associate and Secondary Maths lead) will continue to deliver this network. This is an opportunity for all **Heads of department** to come together to review and share approaches to current national and local initiatives.

St Helens & Sefton - Thursday 7th November 2019: Rainhill High School, Warrington Rd, Rainhill, Prescot L35 6NY
Wigan - Tuesday 8th October 2019: Byrchall CPD Centre, Warrington Rd, Ashton-in-Makerfield, Wigan WN4 9PQ
Liverpool & Knowsley - Tuesday 15th October 2019: The Fire Service HQ & Conferencing, Bridle Rd, Bootle, L30 4YD
PRU/Special School - Wednesday 9th October 2019: Oakfield High School, Long Ln, Hindley Green, Wigan WN2 4XA

Further details: **http://bit.ly/2MqBgBI**

These sessions are free of charge

Mathematical thinking for the GCSE

This Work Group offers teachers and their departments nationally coordinated support to address the reasoning and problem-solving challenges of the mathematics curriculum and its assessment in the new GCSE. Many departments will be considering not only the long-term development of these skills across KS3 and into KS4, but also the immediate needs of current KS4 pupils facing the challenges of the new GCSE. This Work Group aims to support both these aspects through professional development activities focusing on practical and accessible classroom-based approaches. Participation also offers the opportunity to develop departmental professional development processes and produce longer-term improvement plans.

Who is this for? All secondary schools wishing to begin or continue a programme of professional development to address the teaching and learning implications of the new curriculum and GCSE. Ideally, each school will send two members of department (at least one of whom is experienced and has some leadership responsibility) to maximise the impact of the professional development within the department.

What is involved? 4 x half day workshops focused on developing reasoning and problem-solving skills in all lessons .

Gap tasks between the workshops will include Lesson Study, allowing wider department participation in the professional development.
There will be an evaluation process focusing on the impact of activities on pupils and the wider department.

Recruitment rounds for this project will be opened in September 2019. We would particularly welcome applicants from Liverpool, Wigan, Sefton, St Helens and Knowsley.

This programme is FREE of Charge.

Supporting Post-16 GCSE resit

There is now a large and growing number of Post-16 GCSE Resit students, predominantly in FE colleges. GCSE Mathematics is still unfamiliar to many teachers in FE Colleges and Sixth Form Colleges and with a timeframe for resit delivery over 8 months rather than two (or more) years, centres are faced with a number of substantial difficulties.

Intended outcomes: participating teachers and their departments will:

- Develop teaching and learning approaches/pedagogy to promote student engagement with the revised curriculum
- Develop teachers' confidence and competence in teaching the new GCSE as a resit in Post-16 (often limited to an 8 -month course)
- Share practice and resources which are effective with this group of students (e.g. through SoW, CPD, collaborative planning), so that these approaches become embedded as departmental practice
- Increase localised support and collaboration with local schools and FE institutions
- Use gap tasks/ TRG style meetings to model and disseminate research and practice

Who should attend? Teachers of GCSE maths resit students in 11-18 centres and FE institutions.

What is involved? Four half day workshops (1-4pm).

Dates and venue TBC

This programme is FREE of Charge.

Secondary Excellent Maths Teacher Programme

Who is it for?

These sessions are aimed at excellent maths teachers who have the potential and drive to achieve excellence in maths practice and the ability to develop others.

4 full day sessions to include:

What does outstanding maths practice look like?

- Understanding how practice has changed at Key Stage 2 and the need to build on this at Key Stage 3
- Developing problem solving, reasoning and fluency throughout Key Stages 3/4
- Effective monitoring to determine impact
- Tracking of progress and skills to inform action planning and next steps
- Exploring and developing assessment
- Providing effective feedback
- Lesson structures, planning and questioning

Delegates will be involved in 3 'Gap tasks' linked to practice in their own schools.

This programme is free of charge

This programme was extremely well received in 2018-19. 12 Secondary Maths teachers took part in this programme.

Participant feedback:

Just wanted to pass on my thanks to you for the running of what has been an outstanding 4-day course. The course has genuinely changed the way I plan a number of lessons and has more than sparked my interest in 'mastery'. Your knowledge is second to none and your enthusiasm is contagious! Both of which made the course a great success. **Marc Roberts, Cowley Language College, St Helens**

EOI for this programme are now being taken for 2019-20. The first session is Thursday 26th September 2019

See here for further information: http://bit.ly/2Nj7bUq

Secondary Maths CPD Network (Whole school department opportunity)

As a result of extremely positive feedback from the previous 3 years, the secondary maths CPD network will continue in 2019-20. Whole Secondary Maths departments meet on a half termly basis to explore key mathematical themes. All themes have been selected based on need. Secondary Maths departments from across the NW have had the opportunity to engage in high quality CPD from experts in their field. It has provided an opportunity to network and share good practice. This network has been a huge success with over 25 secondary maths departments attending on a regular basis.

Autumn Term 1 Thurs 19th September 2019 Catherine Van Saarloos @CoreMathsCat

Probability in the courtroom. Although Hannah's sweets certainly caused some controversy in 2015, a misunderstanding of probability can have life changing consequences. This session will explore ways of presenting probability in the context of law and health and approaches to support students make sense of complex problems.

Autumn Term 2 Thursday 21st November Rob Eastaway @robeastaway

Maths on the back of an envelope Estimating and real world problem solving. Rob Eastaway is one of the UK's leading maths communicators, and the author or co-author of several bestselling books including 'Maths for Mums & Dads' (written with Mike Askew), 'Why Do Buses Come in Threes?' and 'How To Remember Almost Everything Ever'. His latest book, 'Maths on the back of an Envelope' is published in September.

Full programme details: http://bit.ly/2P2ei60

Early Career Development Programme (previously NQT/RQT Programme)

A key aim of this work group is to support teachers new to the profession to ensure they are providing a strong curriculum, teaching and professional development practices that can be shared amongst the departments they are working in and across the Hub region. This Work Group has run successfully for the past two years and we intend to review and evaluate this programme on an annual basis to ensure we are continuing to meet the needs of all Maths Secondary NQTs across the patch.

Trainees will:

- Become more confident when planning and organising effective mathematical opportunities
- Have the opportunity to network with colleagues that are new to the progression
- Learn how to manage a smoothly run maths classroom, ensuring all learners are engaged
- Improve progressional understanding
- Have an improved understanding of what depth looks like leading to mastery
- Create and share good quality maths resources
- Motivate pupils to enjoy maths
- Learn to embed problem solving and develop reasoning opportunities in every lesson
- Reflect and evaluate practice ready to start their RQT year

This programme is being offered again in 2019-20.

This programme is free of charge

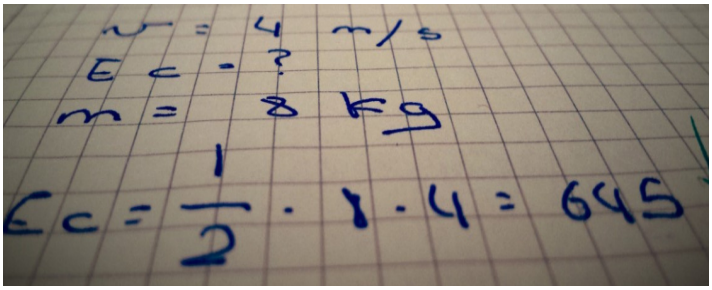
Details: http://bit.ly/2KG3arc

Girls Maths (Innovation)

There is a distinct gender gap in the performance at GCSE level mathematics highlighting a lack of engagement in the subject by females. This has impacted on the uptake of mathematics at KS5 with far fewer girls than boys choosing to study Core Maths or A level. This work group aims to understand some of the causes of this gender gap and to investigate strategies to increase participation of girls in maths.

Who should attend? Teachers of secondary and post 16 mathematics from schools keen to understand and address the gender gap.

What is involved? Participants will attend 4 half day workshops (1-4pm) throughout 2019-20 with 3 gap task activities between each workshop. Each workshop will involve a review of current literature, examples of good practice and essentially group discussions around the main areas for development. Gap task activities will be an extension of the areas discussed in the workshop – an opportunity to share with others in their department and try out ideas in the classroom which can then be refined at the following workshop.



Dates: Monday 9th December 2019, 1-4pm

Thursday 27th February 2020, 1-4pm

Thursday 26th March 2020, 1-4pm

Thursday 11th June 2020 , 1-4pm

This programme is free of charge

Details: http://bit.ly/33O0kIu

Raising confidence delivering the harder GCSE topics (Innovation)

The current GCSE Mathematics specification sees a number of topics that are taken to a much higher level than in previous years. The specification has also introduced an increased emphasis on problem solving and mathematical reasoning. These issues present further problems for inexperienced and non-specialist teachers of higher level GCSE maths.

Who should attend? Teachers lacking confidence to teach the harder GCSE topics. These could be non-specialists, maths teachers that do not have a maths degree or maths teachers that have not taught the new Higher level GCSE.

What is involved? 6 x full day workshops with 5 lesson study style gap tasks. Each workshop will focus on one area of the curriculum:

- Quadratics
- Trigonometry
- Indices & Surds
- Circles
- Probability
- Vectors

Participants will look at the GCSE specification for each topic area in detail. They will look at how the topic is assessed and how to effectively break down the topic into stages for progression in learning. The skills required for each topic will form the basis of the session, plus how to build in opportunities to problem solve with application questions. Participants will complete a gap task between each session which will involve collaboratively planning with a colleague in their department and delivering a lesson using a lesson study model.

Dates and venue TBC

Full programme details: http://bit.ly/33L2A2U

Secondary Mastery Readiness Programme (Innovation)

Teaching mathematics for mastery at primary school has been developing for a number of years and secondary schools need to be equipped to ensure that the children coming through are taught with a focus on the same five big ideas. Using the successful primary mastery readiness programme as a model, this has been adapted for secondary schools and is aimed to give teachers an in depth look at two of the five big ideas.

Who should attend? Teachers of secondary maths departments that are interested in learning more about teaching for mastery, collaborative planning and observing mastery in action.

What is involved? 6 afternoon half termly meetings with gap task activities between each workshop

Autumn 1- focus on variation linked to addition of fractions

Autumn 2- variation linked to teaching averages

Spring 1- variation linked to teaching indices

Spring 2- representation linked to FDP equivalence

Summer 1- Representation linked to Area

Summer 2- Representation linked to Simultaneous equations

Each session will be followed by a 'gap task' for teachers to lead/deliver a session to students linked to the theme. They will be expected to disseminate ideas/concepts with colleagues within their department and return to the following session with evidence of findings to review/reflect and evaluate learning to develop practice further. All sessions will model and exemplify mathematical content via a big idea across the two key stages thus showing how it can be easily adapted and adopted. Participants will receive national updates ensuring their practice remains current/relevant to ensure students are getting the best possible opportunities.

Dates and venue TBC

Full programme details: http://bit.ly/33JhOFz

Post-16 National and Innovation Projects

Post 16 Priorities for 2019 -20

- To develop a **Core maths network of teachers** to meet to share resources (aimed at teachers that sign up for AMSP courses for Core maths that we anticipate will run from September)
- To **Strengthen partnerships with all Teacher Training Providers** in our region and set up half day workshops for student teachers to get training on all Level 3 maths options open to students.
- Offer **in house CPD for large colleges** in priority areas for GCSE Resit
- **Embedding A level technology**
- **Developing parents as partners** - NEW innovation project

Further details to follow. For more information please contact Sarah Boyle: **sarah.boyle@calderstones.co.uk**

Supporting Core Maths- AMSP collaboration

For further information about Core Maths Work Groups, please contact:

sarah.boyle@calderstones.co.uk – NW3 Post-16 Lead

m.bamber@liverpool.ac.uk – AMSP Regional Lead and Liverpool Work Group Lead

a.birch@xaverian.ac.uk – AMSP Regional Lead and Manchester Work Group Lead

Embedding Technology in Level 3 Maths

The linear A level requires that the use of technology 'permeates' the study of mathematics. This Work Group, run in partnership with the Advanced Maths Support Programme (AMSP), will explore practical approaches for integrating technology in the A level Mathematics (or Further Mathematics) curriculum. Participants will explore where, when and how to use technology to enhance students' learning, understanding and experience, and will develop their own technology skills. The underlying theme of each Work Group is to develop participants as technology champions in their own departments

Who is this for? Teachers of A level Mathematics and Further Mathematics or Core Maths, and especially those wishing to develop the use of technology in A level teaching with others in their department. This project is not designed to focus on developing new technology skills for beginners from scratch.

What is involved? Through three face-to-face Work Group meeting days (or equivalent), participating teachers will develop their practice to further embed the appropriate and effective use of technology in the study of the linear A level Mathematics, and to champion the use of technology within their own mathematics department.

Further details: **http://bit.ly/30iVCQG**

AMSP Update

Since the **Advanced Mathematics Support Programme** began in May 2018, they've been working hard to support schools and colleges with developing their provision for advanced maths qualifications.
The AMSP is a national programme funded by the Department for Education and managed by MEI. It continues the work of the Further Mathematics Support Programme and the Core Maths Support Programme.
The AMSP's central aim is to increase participation in level 3 maths qualifications – Core Maths, AS/A level Mathematics and Further Mathematics. We've already made some excellent progress, and you can read more about our work and achievements so far in this newsletter: **https://bit.ly/2Vt4T9B**

In-School 'Core Mathematics Roadshow' - Enrichment Opportunities for Y10 students

FREE 1-hour enrichment sessions held in your school, targeting Y10 students working towards GCSE grades 4 – 6. Focus on practical and real-world mathematics applications. For schools who are considering offering the Level 3 'Core Maths' qualification post-16.

- To help develop students' practical and real-world problem-solving skills.
- To help explain to schools the benefits of post-16 mathematics study, especially the Level 3 Core Mathematics qualification: **https://www.stem.org.uk/core-maths**

Further details:

Alongside the enrichment session with students, we would welcome the opportunity to spend some time with HoD / members of dept / SLT to discuss whether offering the Core Maths qualification in your school might be an option [Note: we DON'T promote the qualification directly to students]

Booking a visit: please contact Sarah Boyle: sarah.boyle@calderstones.co.uk (Post-16 lead for NW Maths Hub 3), or

Martin Bamber m.bamber@liverpool.ac.uk (AMSP Area Co-ordinator, NW)

Connecting Initial Teacher Training with Maths Hubs

North West 3 Maths Hub are delighted to be working in partnership with local ITT providers to support the effective recruitment, preparation and development of teachers of mathematics.
The following universities are committed to being engaged in the work group in 2019-20:
Edge Hill University, Liverpool Hope University and Liverpool John Moores

Professional learning linked to this work stream:

For ITT providers: an understanding of the work of their local Maths Hub and the National Maths Hubs Network, including Teaching for Mastery (TfM), and the potential impact on their trainees.

For Maths Hubs: to ensure that there is the opportunity for collaboration and professional discussion of practices across ITT providers

For ITT trainees: some input on the principles of TfM will impact on their subject knowledge and understanding of the connections in mathematics. In particular, the application of the theory of variation to intelligent practice in the classroom and the importance of carefully crafting lessons based on small steps in key learning.

Intended Activity for 2019-20

ITT work group leads will make contact with all local HEIs, TSAs and SCITT-invite leads to a regional conference day with other North West Maths Hubs.
Regional conference day-focus for the day 'Teaching for Mastery.' Sessions include an overview of T4M, workshop sessions from Mastery Specialists from Primary and Secondary, phase workshops on implications for ITT programmes and providers, session on working collaboratively together with Maths Hubs

This work stream is Free of Charge.

Want to keep up with everything that's happening in North West Maths Hub 3?

Sign up for our mailing list here:

http://eepurl.com/du2lnn

Supporting sustainability within established Mathematics SSIF bids

Maths hubs across the country have been charged with supporting established SSIF Maths bids as funding/provision comes to an end. Maths hubs initially endorsed the school self-improvement bids to ensure all maths bids complemented the current work of maths hubs. As a way of ensuring sustainability maths hubs will be supporting capacity of current bids to ensure good practice is transferred, sustained and embedded where possible. North West Mths Hub 3 will be supporting the Liverpool Archdiocese bid with the following schools:

Liverpool: Archbishop Beck; Bellerive; Broughton Hall; Cardinal Heenan; Notre Dame; St Edwards College; St Francis Xavier; St John Bosco; St Julies; St Francis of Assisi; St Nicholas; De La Salle Academy; All Saints Catholic High

Knowsley: St Edmund Arrowsmith

Sefton: Christ the King; Holy Family; Maricourt; Sacred Heart; Savio Salesian; St Marys Independent

St Helens: De La Salle Academy; Hope Academy; St Augustines; St Cuthberts; Carmel College

Wigan: St Edmund Arrowsmith; St John Fisher; St Marys Catholic High; St Peters; St John Rigby College

About our work

As a Maths Hub we provide support to all schools in the area and the NW, across all areas of maths education, including:

Recruitment of maths specialists into teaching.

Initial training of maths teachers and converting existing teachers into maths.

Co-ordinating and delivering a wide range of maths continuing professional development (CPD) and school-to-school support.

Ensuring maths leadership is developed, e.g. running a programme for aspiring heads of maths departments.

Helping maths enrichment programmes to reach a large number of pupils from primary school onwards.

Write down a number over 100 that is a multiple of 7.
…and that contains a 4
…and that doesn't contain a 1
Explain your method.

NCETM Assessing Mastery KS3

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