MathsHUBS
North West Three

Spring Newsletter

February 2020

North West Three Maths Hub

NCETM and Maths Hubs:

Who are they? How do they work together?

Inspire Support Achieve
Working together to...
North West Learning Partnership

Continuing Professional Development Standard
National Centre for Excellence in the Teaching of Mathematics

National Centre for Excellence in the Teaching of Mathematics

The Three Saints Academy Trust

NCETM

The essential free source of support for all teachers of maths and those who lead the professional development of teachers, in every school and college ohase, and at every point of their career

What do we do?

- News and features
- Videos and podcasts
- Monthly Primary and Secondary Round-ups
- Teaching for Mastery resources
- Twitter and Facebook
- Working closely with Maths Hubs

Maths Hubs

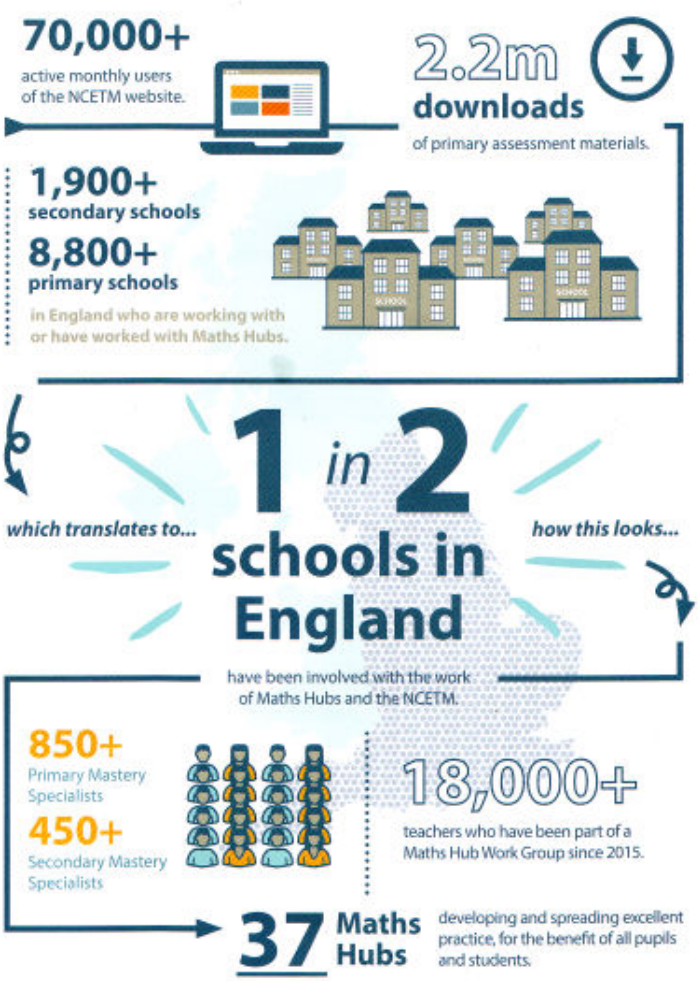
Helping schools and colleges lead improvement in mathematics education

A national network of 40 hubs, each bringing together teachers, schools and other bodies to collaborate locally and contribute to national projects across England.

Each Maths Hub is led by an outstanding school or college.

What do hubs cover?

- Teaching for mastery
- Early Years
- GCSE and A Level
- Core Maths
- Developing local leaders of maths education (LLME)



This newsletter focuses on demonstrating local impact in the areas that North West Three Maths Hub serves

Primary and EYFS National and Local Projects

Schools success working in partnership with Maths Hubs

Orrell Holgate, a school in Wigan has been working with North West Three Maths Hub for several years engaging in the Teaching for Mastery Development Work Group, EYFS - Developing Mathematical Fluency Programme and the Excellent Maths Teacher Programme. The Head Teacher, Gail Worrall has found all programmes highly beneficial in supporting the school in moving mathematics forward, resulting in extremely positive outcomes for all pupils.

At the recent OFSTED inspection in September 2019 the team commented:

"The mathematics curriculum is ambitious and carefully adapted to meet the needs of all pupils, including pupils with SEND. Teachers make sure that pupils have the resources and support that they need. Staff have received professional training and support in teaching mathematics. As a result, teachers build in many opportunities for pupils to solve problems and reason. Pupils enjoy their mathematics learning and achieve well."

Mastery Readiness

In 2018-19, 21 schools across the region took part in the Northern Powerhouse programme to pilot Mastery Readiness. Due to the success of the programme this was further developed and rolled out as a National Collaborative Project (NCP).

Programme design:

100% of the survey respondents said that they would recommend to Mastery Readiness Programme to colleagues in other schools.

Inviting the headteacher to the first workshop proved invaluable, all headteachers attended and had a clear understanding of the aims and structure of the programme. This ensured that the maths lead and key teacher were able to work together in school to develop mathematics. This was also important for establishing relationships between the mastery readiness lead and school leaders.

A key strength of the programme is the requirement for there to be two participants from each school to attend the workshops. The maths leaders and key teachers all identified that they highly valued the opportunity to work together and time for this outside of school. This is key to succession planning as developments are driven by teachers working together. Discussions at workshops between school colleagues was identified as being invaluable.

All the schools joined a Teaching for Mastery Development Work Group in September to continue their journey towards teaching for mastery.

The bespoke nature of this programme is a key strength and is an enabler for schools to be supported in driving developments.

Schools feedback

Teachers commented: "It has made me realise the importance of breaking down concepts and increased opportunities for daily practise of key mathematical skills."

"Utilising our basic skills time more effectively, using counting and games to support. Rewriting our calculation policy so staff are clear on expectations in each year group. Use of concrete pictorial and abstract representations."

Bespoke school CPD sessions led by the Mastery Readiness Lead has ensured that all staff, both teachers and teaching assistants, have been part of the developments within school, not just the maths lead and participant teachers who attended the CPD days.

Maths subject leaders commented "It has honestly been one of the most beneficial CPD I have ever attended. It has definitely shaped me as a teacher and given me a better understanding of how to share the information with staff."

A key focus was to develop consistency across each school, this could be in use of concrete and visual representations, consistent approaches to planning, consistent lesson structure across school, consistent use of key resources to support planning and teaching.

All schools strongly agreed or agreed that they had noticed pupils engaging with maths in a different way since participating in this programme and that pupil attitudes to learning have improved.

Mixed ability groupings have been developed across the majority of the schools involved. The schools have acknowledged that whilst there have been some challenges in implementing this approach, it has led them to reflect on the expectations that they have for all pupils. This has had an impact on children's attitudes and confidence.

Pupils have commented on mixed ability groupings "I like to work with different people because it helps me to see how they learn things."

Subject expertise has been well developed with a key focus on ensuring children have a deep secure understanding before moving on.

One school stated "This is a very positive experience- a perfect opportunity for staff professional development and to create a shared vision of what Maths looks like in our school. The workshops have given us lots of great practical resources and enabled us to have a deeper understanding of Maths. The programme is bespoke for our school, and Claire's visits have helped us to develop aspects of the subject specifically for our school. It enables time for a professional discussion, advice and support with an expert."

OFSTED comments about the programme:

One school's recent OFSTED report stated, "The changes leaders have made to the way mathematics is taught are beginning to improve progress for current pupils." "Mathematics is taught systematically across the school, with opportunities for pupils to develop an understanding of number systems, build fluency and solve problems with increasing accuracy. This has led to improving progress for current pupils, particularly in key stage 2."

"In mathematics, attainment is beginning to improve, including for disadvantaged pupils, particularly in key stage 2, because of improvements in the quality of teaching."

Another school's recent OFSTED report commented "Leaders of mathematics articulated very well to inspectors the strengths and weaknesses of their areas and explained well-devised plans for improvement."

"Work in partnership with a local mathematics hub has helped leaders plan the mathematics curriculum. Teachers deliver the curriculum effectively. Effective mathematical learning begins in the nursery and continues throughout the school. Subject leaders receive regular training. They share this with the staff. Lessons build well upon what pupils already know. Pupils engage in a wide range of problem-solving and reasoning activities. They take pride in how they present their calculations. Written explanations are typically mathematically accurate. However, they are not well constructed because pupils do not apply their basic writing skills well. Pupils relish the challenges that mathematics presents." (Netherton Moss Primary, Sefton, November 2019)

In 2019-20 3 Knowsley, 13 Liverpool, 8 Sefton, 15 Wigan and 14 St Helens schools are taking part in the Mastery Readiness Programme. These schools will continue their mastery journey onto the Teaching for Mastery Development Programme in September 2020.

We will be enrolling more schools onto the Mastery Readiness Programme for September 2020. To find out more and enrol please see http://bit.ly/2uLm2jh

Primary Teaching for Mastery Development Programme

84 Primary schools from Warrington, Wigan, St Helens, Liverpool, Wirral, Sefton, Cheshire, Lancashire, Knowsley, Halton took part in the programme.

19% of these schools were graded Outstanding by Ofsted

71% of these schools were graded Good by Ofsted

10% of these schools were graded RI by Ofsted

26 of the 84 schools received a visit from Ofsted during their participation in the Teaching for Mastery Development Programme.

32% of the schools claimed the textbook match funding.

Work Group Activity

The 11 Primary Mastery Specialists delivered a TRG every ½ term. Each TRG was accompanied by valuable talk and development time, drawing out aspects of subject knowledge and mastery pedagogy. Each teacher left the session having learnt something new that can be applied to their own classrooms and school settings.

In addition to the TRGs, each Mastery Specialist carried out 1 school visit per school per term.

The focus of the TRGs was the understanding of the 5 principles of teaching for mastery

The purpose of the school visit was to offer bespoke mentoring for the leadership of teaching for mastery in the school. The specialist made contact and had relevant discussions with the head teacher as well as the participating teacher in the school on each visit

Ofsted Comments

26 of the 84 schools received a visit from Ofsted during their participation in the Teaching for Mastery Development Programme. Below are comments relating to mathematics taken from the reports:

"You have improved the leadership and teaching of mathematics. Teachers now give pupils frequent opportunities to develop their problem-solving skills. They use classroom displays to improve pupils' mathematical vocabulary and support learning. As a result of improvements, standards in mathematics have risen and pupils achieve well."

"The quality of teaching of mathematics has improved greatly. Strong subject leadership has prioritised effective changes to the mathematics curriculum and developed teachers' knowledge and skills in the teaching of mathematics. The subject leader is knowledgeable. Teachers benefit from the provision of additional training, a mathematics hub and other local schools. The revision of the school's policy to teach calculation has contributed significantly to the systematic teaching of mathematics skills. The consistent implementation of this policy in all year groups ensures that pupils develop their knowledge and understanding of the required mathematical skills well."

"The leadership of mathematics has been effective in bringing about recent changes in the way mathematics is taught. Staff have received thorough training facilitated through a local mathematics hub. The leader for mathematics ensures that teachers' subject knowledge remains strong. The leader makes frequent checks on teachers' planning and regularly facilitates opportunities to share good practice."

"Leadership of English and mathematics is strong. These leaders have good knowledge of their subjects, and of the quality of teaching and progress. They have been effective in bringing about improvements to pupils' progress in their subject areas since the last inspection. "

Impact on participants' practice

100% of teachers agreed or strongly agreed that their knowledge of mathematics had deepened through participation in the Work Group and likewise their knowledge of how to teach mathematics for mastery.

100% of teachers agreed or strongly agreed that the Work Group has contributed to a long-term change to teaching mathematics in their schools.

Planned activities are now focused around a layered, low threshold high ceiling approach - evident from lesson observations/book scrutiny.

All children now access learning via CPA approach ¬- evident from lesson observations.

Development of planning—small steps, 5 big ideas (including CPA), more thought given to progression in lessons.

Focus on mathematical vocabulary in each year group, for teachers and children

Teaching Assistants & teachers 'floor sweeping' during independent activities

Mixed ability groupings has had a huge impact on learning and raising expectations of all learners.

Improved subject knowledge, specifically centred on the five big ideas.

Honing skills within own year group and then disseminating them to other staff.

Time to research specific areas of Teaching for Mastery and improve teaching and understanding.

How to teach variation in mathematical concepts; that mixed ability teaching is important for ALL pupils; and stem sentences are useful to support the children's understanding.

Whole class teaching has a huge impact on progress compared to differentiation by task, this is supported in the Education Inspection Framework 2019: 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.

Improved understanding of Teaching for Mastery and pedagogy.

Developing better quality pupil talk.

Children are exposed to a variety of representations in all areas of maths, there is a lot more maths talk between children and understanding of key vocabulary.

Children are more collaborative and purposeful in tasks and willing to make mistakes and use them to further their understanding.

Other teachers have felt their practice has improved using this approach and internal data in maths has improved across school. They feel more confident with their maths teaching and children are generally more engaged and excited about maths.

"I have completely changed the way I teach and now allow more time to explore, play, investigate, discuss, and share working out. I'm much more aware of how the children need to see maths in a variety of ways".

Impact on participants' school practice, vision, policy and culture

Support staff deployed more effectively, not just with LA group.

Structure of lesson changed for the better.

CPD now involves regular TRG sessions/coaching/lesson study in the schools.

Mathematics is now high on the agenda and regularly revisited during staff meeting. s

A clear understanding that this is not a quick fix but a long term change in the teaching and learning of mathematics.

Changes in the school timetable and deployment of staff to

assist a Teaching for Mastery approach.

Improved confidence for mathematics Subject Leads in leading staff across the school in a mastery context.

Improved CPD for all teachers focusing on TfM pedagogy supported by Maths Hub.

Strategic leadership of mathematics developed including planning for embedding TfM next year as part of an Embedding Teaching for Mastery Work Group.

Development of whole class teaching to develop mastery approach.

Staff meetings often commence with example activities, modelling lessons with staff as the pupils to share best practice examples and discuss impact together.

Observations for mathematics quality through mastery approach much better informed.

Impact on participants' pupils' attitudes, engagement, attainment and progress

Increased confidence in all children ¬- evident from lesson observations.

Children are more confident in explaining their reasoning - evident from lesson observations.

More children are achieving age related expectations – evident from test and Teacher Assessment data.

Increased scores on arithmetic tests – evident from test data.

LA children's confidence has dramatically risen and they all feel 'involved' - evident from lesson observations.

Children moving together on the journey, high expectations for all - evident from lesson observations.

Children are more engaged with tasks - evident from lesson observations.

Pupil attitudes to learning mathematics are more positive and that pupil attainment is improving.

One school has noticed that results for previously low-attaining girls have improved, in particular:

"Lessons are far more engaging for the pupils - they are active learners in maths now plus, they have a more resilient approach to maths. The attainment data for classes that have only ever had a maths mastery approach are improving."

Where most schools have reported the greatest improvement is in the least able.

Mixed ability partners and more 'open' hooks, allowing different methods, has opened up lessons to include everyone, giving rise to greater participation of the least able.

A totally new approach to teaching maths which has led all of our children to verbalise their understanding more and become resilient problem solvers.

Lower ability children have made more progress this year than previous years in maths.

Attitudes are all very positive from pupil voice. Children have enjoyed the change and enjoyed being challenged. Our children are now more resilient, and this has had an effect across the curriculum. Attainment has risen too - but as it embeds further we expect more progress on this.

More pupils are more confident in talking about maths and more willing to try challenges that they may not have been exposed to previously.

More pupils are engaged, and progress is high in all groups of learners.

Pupils were already listing maths as their favourite subject, consistently in all year groups through pupil questionnaire. This interest and passion for maths (above all other subjects) has been maintained and there is a more evident and tangible 'buzz' for mathematics within lessons.

SATs results indicate a slight increase in children attaining ARE. Further analysis would indicate that the greatest increase would be for girls and children previously regarded as "borderline." Schools feel this is connected to a more secure understanding and growth in confidence.

A significant increase in children choosing maths as their favourite subject and responding positively to statements about whether they see themselves as strong mathematicians.

Schools feedback on programme structure

"TRGs have been a huge support and success."

"Mastery Specialists' knowledge has aided us massively on our journey."

"Watching demonstrate lessons has made it easier to see how it works in practice. "

"The lesson observations and post lesson discussions have had the most impact. "

"The sharing of the power points has also been a great scaffold for staff in producing their own resources. "

"Having open and honest discussions has been great. "

"It has been really useful to observe lessons at other schools delivered by the Mastery Specialist but it was also effective when the Specialist did learning walks and book scrutinies at my school so we could quality assure the work that is going on."

"Modelling of how lessons should look and confidence in mixing abilities"

"Sharing good practice/concerns. Super resources from specialist to help and always at the end of a phone. Great to

watch lessons taught to demonstrate mastery and across different age groups. These resources/ideas have already been used by staff in school."

"A very well structured CPD programme!"

Conclusion

When schools fully commit to the programme and mathematics subject leaders and lead teachers are clear about their roles, the expectation that all TRGs need to be attended and all school visits engaged in, there is great impact across the school. This is all driven by effective leadership which is why we endeavour to engage with head teachers on the programme through the initial launch and the termly HT meetings.

Schools where it has worked well entered into the project understanding the clear vision from school leaders.

When it doesn't work this is due to a clear lack of direction from school leadership which has led to participants not understanding their role within the project.

The next national recruitment round for this programme will be open in Spring 2020. Further information including application form will be available at a later date.

NCETM/Maths Hubs has produced an independent thematic report on this programme. This takes into account findings from across the 37 Maths hubs network and can be found here:

http://bit.ly/2nItZlV

China - England Exchange Visit

3 Teaching for Mastery Specialists, Rosie Ross (Wirral), Darren Partington (Knowsley) and Amanda Sharples (Wigan) represented North West Three Maths Hub on the China Exchange visit for 2 weeks in November. The visit to Shanghai continues to be a transformational experience for many teachers.

The return leg of the visit will begin on week beginning 2nd March for 2 weeks. During this time the Chinese teachers will be based at the Primary Host school - Northwood Primary School, Knowsley and the Secondary Host school - St Peter and Paul, Halton.

Primary open classroom events:

Wednesday 11th March 2020 Key Stage 2 - 9.15am (for 9.30am start) - 11am

Wednesday 11th March 2020 Key Stage 1 - 1.15pm (for 1.30pm start) – 3pm

Northwood Community Primary, Roughwood Drive, Kirkby, Knowsley, L33 8XD

To book on either of these events, please contact paula.foster@three-saints.org.uk

Secondary open classroom events:

Tuesday 10th March 2020 1pm-4pm. Sign up here: **http://bit.ly/2Ok4fqI**
or
Wednesday 11th March 2020 10am-1pm. Sign up here: **http://bit.ly/36OyXhJ**

Saints Peter Paul Catholic College, Highfield Road, Widnes, Cheshire. WA8 7DW







Teaching for Mastery Embedding Programme

In 2018-19: 7 Sefton, 8 St Helens, 1 Knowley, 4 Wigan, 8 Liverpool and 20 Warrington schools. **100 % of schools have continued to engage in this third year of support**. In previous years only 50% of schools took up the offer.

Schools are now seeing the huge benefit of the Teaching for Mastery Programme being a 3+ year programme. Moving through the stages, with lighter touch support and some funding is proving to be a 'sustainable' success.

In year 3 schools have worked in clusters within localities to focus on the following projects:

- Teaching assistant work groups to improve subject knowledge and progressional understanding of how best to support maths learning
- Peer to peer maths subject leadership support
- Sharing of good practice with a particular focus across the schools
- Head teachers/senior staff to know what 'good' maths provision looks like
- Collaborative planning – between schools across year groups
- Moderation and standardisation
- Reviewing and developing key maths policies/documents- calculation, action planning, feedback and marking, effective maths provision- what does it look like
- Teaching for mastery - common approach to key principles
- Action research groups with a focus on maths concepts and ideas i.e. use of manipulatives, greater depth, lesser attaining provision/effective support, questioning, problem solving and mathematical thinking
- Developing effective mathematical talk

and much more…

Schools commented:

"Working as a cluster of schools who all have a good understanding of Teaching for Mastery, at a similar stage, has really supported us in moving on with our journey. This collaborative approach has enabled all staff to engage in TRG style sessions (based on our previous experience of working with a specialist in the previous phase) and see TFM in action, resulting in a deeper understanding for them which is beginning to have a positive impact on pupils."

"There was a clear, agreed focus and actions from the onset. All schools have successfully trialled and are now using the FREE PD materials in line with the NCETM Teaching for Mastery assessment documents resulting in the development of teachers understanding and increased confidence of Teaching for Mastery and assessment."

"Very productive process. The networking between like minded schools has helped to support and challenge our thinking further at every level."

"All staff are now using TFM pedagogy due to engaging in the CPD model of sharing of good practice. It is not like attending a one-off course where one teachers practice is positively affected. It is most certainly a whole school change of mind set, principles and practice."

"Teaching assistants are now highly skilled and perform like teachers when supporting pupils."

In 2019-20, 24 Knowsley, 13 Liverpool, 13 Sefton and 15 Wigan schools will automatically take part in the Teaching for Mastery Embedding Programme as a result of completing the Teaching for Mastery Development programme.

Teaching for Mastery Head Teacher Clusters

Introduced in 2017-18 to support the Teaching for Mastery Programme roll out. Head teachers in the Development programme have had the chance to meet with the Maths Hub Lead and Teaching for Mastery Lead on a termly basis. The meetings take place in 5 locations to accommodate and encourage 100% participation.

During the meetings Head teachers have the opportunity to discuss and share how the programme is going – sharing successes and challenges. There is the opportunity to clarify expectations of the programme, discuss funding and provide essential national updates.

In the autumn term the focus was on PD materials and how these could be implemented across school. The focus for the spring term will be OFSTED and how teaching for mastery principles align and the summer term focus will be on ensuring schools are fully prepared to move into the 'Embedding' stage of their journey. Schools will be put into clusters/leads identified and action plans will be developed.

Head teachers have commented that these sessions have been invaluable in ensuring the programme is a success within their schools.

As a result of positive feedback, the same model has been implemented for the embedding programme to ensure continuity and sustainability in the teaching for mastery journey.

EYFS Developing Mathematical Fluency Programme

This programme has been successfully rolled out to over 170 settings and is now on phase 6 of the roll out which began in Autumn 2019. The next phase will be rolled out to 40 schools in January 2020.

Schools feedback:

100% of participants evaluated the work group activities as effective. There was no negative feedback about any of the activities.

"The EYFS Mathematical Fluency Project has changed the way I teach mathematics for the better"

"Because of the EYFS Mathematical Fluency Project, my teaching of mathematics is coherent and much better than it used to be."

Impact on pupils:

Teachers report that the impact of the project on their pupils has been significant. In particular, almost all participants have cited improvements in both problem solving and verbal reasoning. In some schools, this finding has been re-iterated by external bodies such as school improvement partners. This is due to the focus of the project on improving the quality of classroom dialogue so that teachers actively model and encourage pupils to articulate mathematical thinking. Along with this, teachers often mentioned that pupils enjoyed mathematics more than before and many noted an increase in mathematical language and play during continuous provision. This suggests that, along with the increasing ability to explain mathematical thinking, pupils have a greater sense of growing competence and are therefore intrinsically motivated to do mathematics.

Impact on teachers:

All teachers involved in the project felt that it had led to significant changes in the way mathematics was taught in EYFS. Comments such as "This project has changed how we teach maths in Reception and we feel it gives a more rounded view of number, shape, space and measure, how they link together and how they link to everyday life" are representative of the self-reported changes. Some teachers also suggested that the project had improved their ability to understand the developmental process that children go through when learning early mathematics however this is an area which could be improved upon in the project next time. In particular, developing some more planning support materials that help teachers understand the developmental stages of learning different aspects of mathematics would be useful. This is something that many participants asked for.

EOI for phase 8 are now being taken for a September 2020 start.

Please visit http://bit.ly/36LoN1b for further information.

Primary Teaching for Mastery Specialists

18 Mastery Specialist teachers are currently working on behalf of North West Three Maths Hub supporting 239 schools on their mastery journey via the National Teaching for Mastery programme. Cohort 5 Mastery Specialists started their training in September 2019.

The following specialists work on behalf of NW3:

Cohort 1 - Adrian Cannell (Sefton), Stacey McDowell (St Helens)

Cohort 2 - George Mounsdon (Knowsley), Melissa Fiendley (St Helens)

Cohort 3 - Doug Pitts (Wigan), Sarah Wilkins (Warrington), Beth Whittingham (Wigan)

Cohort 4 - Darren Partington (Knowsley), Lesley Plant (Liverpool), Lisa Clegg (Wigan), Helen Worrall (Knowsley)

Cohort 5 - Michelle James (Wigan), Julie Morris (Wigan), Mike Rigby (Wigan), Louis Reid (Liverpool), Sarah Bailey (Sefton), Tanasha Robinson (Sefton) and Roisin Dean (Knowsley)

The next national recruitment round if you're interested in becoming a Mastery specialist will be open in spring 2020. Further details, including application form will be circulated nearer the time.



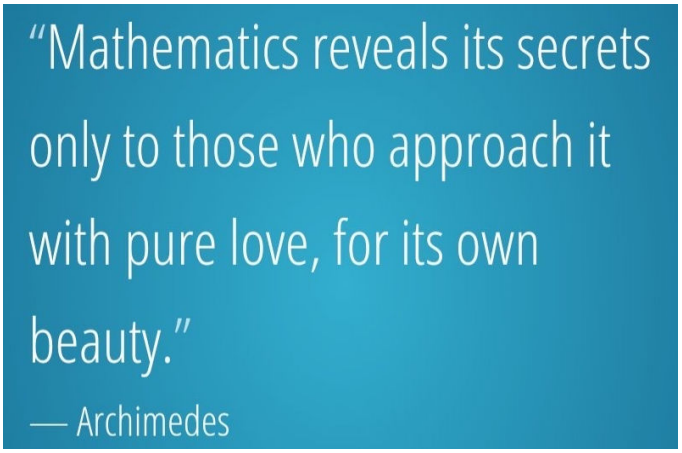










Intervention in a Mastery Context

North West Three Maths Hub 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) over the past 3 years.

Impact on pupils:

EXAMPLE 2 Liverpool schools -

School A- pre and post assessment results after 4 months

Child A – made 20 months progress
Child B - made 5 months progress

School B – pre and post assessment results after 4 months

Child A – made 22 months progress
Child B - made 20 months progress
Child C - made 24 months progress

There has been a similar picture across all schools that have taken part in this programme.

Impact on teachers:

Ability to break lessons down in to smaller bits and stop at the point child gets stuck.

Improved questioning, ensuring clarity, to obtain what the children already know to help with what they don't. When planning, considering the skills the children will use.

Ability to unpick learning steps and more opportunities to scaffold.

Re-evaluating importance of/go back over what you know at beginning of each session so common starting point with class.

Development of language, more games and use of equipment.

Use of sentence stems. Planning variation. Lots of games and activities which could be used in interventions and mental maths lessons.

Different games to be used in interventions - to develop conceptual understanding.

Idea behind getting children to prove / explain answers. True or false questions.

Working out patterns and breaking down ways of getting the same answers in different ways.

Ensuring that the children talk through what they are doing so I can check they are understanding the concept and how in turn that embeds learning. Also comparison strategy and representing things with resources.

Using diagnostic assessment to identify gaps and misconceptions, or struggling learners in context.

We now have much greater understanding of the ways we can support children in order to close the gaps between groups and keep the class together. We have many strategies to intervene when children start to become stuck. We are also using diagnostic assessment to inform our planning which has proved to be extremely valuable when pitching lessons.

When TAs get the chance to carry out intervention they use equipment and small steps to support learning. Most intervention are now done in lessons as struggling learners are identified.

Our confidence and the children's confidence with using equipment has increased.

Schools 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."

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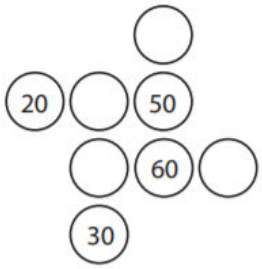


Now create your own diagram with a total of 250.

Excellent Maths Teacher Programme

Schools feedback:

100% rated the programme as highly effective (scoring 4/5 across all areas) areas graded included: their own learning, change in practice and results, change in others and impacting positively on pupils.

Pupil outcomes:

A number of schools reported: greater improvement on scores leading up to national tests in Y2. Years 3 and 4 now have a greater % of pupils at ARE than previous.

One school reported that "last year no child in Y3/4 reached expected standard. This year 70% of pupils have achieved this with a greater proportion reaching GD. KS1 SATs have also greatly improved."

One school reported that maths results have shown slight improvements over the past 3 years, based on working on maths hub projects however this year they have seen the biggest increase of around 90% of KS2 pupil at ARE.

The majority of schools are in line with national expectations and averages for KS1 and KS2- they are reporting now having stronger, more robust systems in place and feel confident to effectively moderate and standardise work across all year groups.

One school was 2nd across the LA (previously bottom) for maths outcomes - tracking shows that attainment is good across all year groups and children are now making accelerated progress.

One school reported: previous 2 years have been below national and local averages in both KS1 and KS2- this years has shown significant improvement at both KS. Of particular strength is KS2 outcomes from 51% to 84%. In year data is also showing signs of improvements which is pleasing and not happened before. The children (and staff) are now excited by maths and this has strengthened the schools position.

A large proportion of schools involved reported that last year they gained the best maths results that they have received ie sig+ at both key stages.

As a result of external moderation, a school reported that progress and attainment across both key stages was good. The provision within books had been positively commented upon linked to this programme.

OFSTED comments:

One school received an external visit. Maths books/practice was scrutinised as part of the visit - "the school is building mathematicians through the curriculum and high-quality maths teaching. One member of staff used the word 'transformation' when referring to changes in maths. A word I would not disagree with."

One school reported "Maths is an area of strength within the school for the first time in years" OFSTED report.

Impact on teachers:

This work group has influenced 200+ teachers (over the past 3 years) through the feedback sessions in school.

82% of participants influenced more than one colleague in school with 55% influencing their whole school through regular feedback meetings following the session.

Supporting colleagues to empower them to influence others is setting up sustainability in the system.

Teachers commented that practice across ALL schools has changed significantly by:

Providing more reasoning opportunities.

Teaching sequences building up over a range of lessons due to improved quality of lesson design and teachers understanding.

Teachers now plan more successful maths lessons linked to progression, problem solving and reasoning.

Children love maths as a result of better quality opportunities.

Staff developed was noted across the participants as significantly improved. They feel confident to support others and were excited to feed back at staff meetings after each session.

Improved reasoning opportunities and open-ended activities- children love the opportunity to explore the maths and challenge each other.

Mathematical language has improved as a result of teacher questioning.

Teachers now plan more effective questions.

The way the schools now present problems to provide variation and promote thinking has significantly improved.

The way the schools design a sequence of lessons to scaffold and progress ALL children's learning has been remarkable.

EOI for this programme are now being taken for September 2020 start. We can accept schools across the NW region for this programme including: St Helens, Knowsley, Wigan, Sefton, Liverpool (NW Maths Hub 3 region) and Warrington, Halton, Cheshire, Wirral, Bolton, Manchester, Lancashire and beyond.

Maths and SEND - INNOVATION

This Work Group was new in 2018-19 as such schools in the following areas have benefitted from the programme so far: Chester, Liverpool, St Helens, Wirral and a cluster of Special Schools based across Cheshire.

Impact on teachers

Focusing on counting and number sense has enabled the teachers to develop their understanding of small steps and the use of a variety of representations to develop conceptual understanding. As a result of the Work Group participants have an enhanced understanding of how teaching for mastery principles can be applied to SEND pupils.

As a result of the Work Group participants are more conscious of the importance of mathematical language and they are using a wider range of resources. The use of a core text (Haylock & Cockburn, 2008) has developed subject knowledge which has enabled them to break down learning into appropriate small steps.

Impact on pupils

"Children have made significant progress in number and I strongly feel that the mastery approach, use of resources, planning structure and interventions have been key to this."

"Children really enjoying maths and interventions special maths."

Schools feedback:

"I've learnt that for children with SEND, small mathematical steps (such as counting and vocabulary) that we assume children already understand can be huge barriers to their learning. I've learned that often simple strategies land resources (such as having a number line readily available can often have a big impact."

"I learnt about the importance of making connections between the language, the concrete experiences the pictures and the symbols. I learnt how these different strands can help to differentiate and also help struggling learner to access the curriculum."

"I have learnt the value of completing a diagnostic test on struggling learners. So often, as a class teacher, you focus on what these learners can't do. By spending time 1:1 with these children and finding out what they can do using the 'pen portraits' I stopped underestimating those children. We stopped treading water and made small steps forwards. This approach really helps the children to gain confidence and feel more positive about maths."

"I have a greater understanding of Mastery and what this means for the less able children in my class. I have seen how they do not always need to be taught a separate curriculum and in fact this can be detrimental to them."

"This is an excellent Work Group that has been highly beneficial!"

Expressions of interest are now being taken for 2020-21. Please contact lisa.bradshaw@three-saints.org.uk

Y5-Y8 Continuity Programme

This Work Group has been running for 3 years. In 2018-19 Primary and Secondary School colleagues across Wigan, Sefton and Cheshire benefitted from the programme.

Schools feedback:

"I will now consider much more what it is that pupils should know and build lessons with a check in style to ensure these are known before extending where I used to start from a zero-knowledge basis."

"As a result of the WG we are planning on providing feedback on the post SATs topics to Yr 6 staff so this will impact on their focus/ teaching for the next few weeks before the children move on to secondary school."

"It has made me aware of the depth of coverage and the use of precise mathematical language thanks to the observations." (Y7 teacher reflection of a Y6 lesson)

"The pupils are now challenged more and don't feel that Yr 7 is repeating topics from Yr 6 but is extending their knowledge. Language is now consistent between both settings. It's been incredible!"

"It's incredible to hear the precision in mathematical language that is being used in primary schools. We absolutely need to continue this through 7 and onwards."

"Looking at the comments written on our Yr 7 scheme of work, it is clear that it is not fit for purpose as we are not taking into account where these pupils are coming from. This has changed since being involved on the Work Group."

"Being able to see first-hand what a morning in a high school is like has made me think about what we need to focus on post SATs. This has really supported the pupils in their mathematical transition to high school."

In 2019-20 we are working with schools in Knowsley and schools within the Liverpool Archdiocese.

EOI are now being taken - If you would like to improve transition arrangements with your local primary/high school and are based in Wigan, Sefton, Knowsley, St Helen's or Liverpool then contact lisa.bradshaw@three-saints.org.uk.

The Work Group 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.

As a result of the Work Group the team created a transition document for the pupils to complete post SATs so that it could be taken with them to secondary school. An official transition email has been opened to aid communication between the schools in the future focusing on maths and pupils progress/understanding.

Primary colleagues collaborated well in ways that they claimed they had never had the opportunity to before, sharing teaching resources, ideas and formal policies with each other. A formal transition document has been created as part of the Work Group and in currently being trialled with Yr 6 pupils.

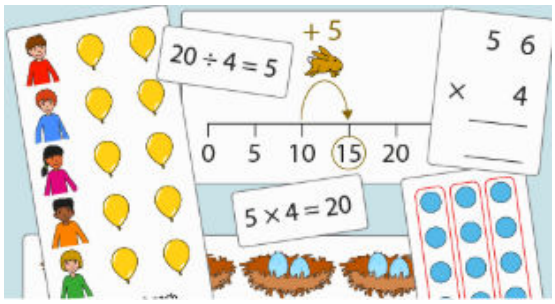
Useful Resources from NCETM

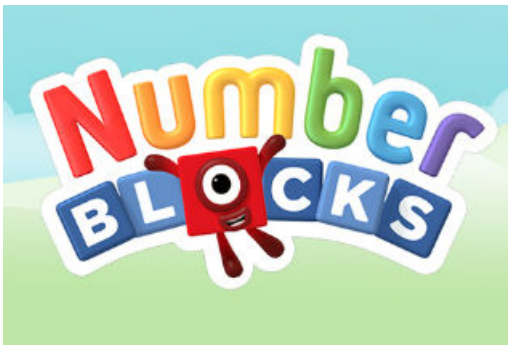
Primary Professional Development Materials

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





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.

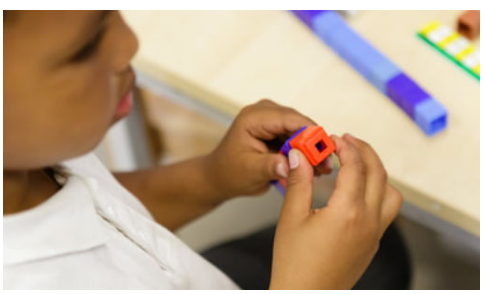
To view the resources:

https://www.ncetm.org.uk/resources/52060

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



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).**

Secondary Teaching for Mastery Specialists

13 Mastery Specialist Teachers are currently working on behalf of North West Three Maths Hub supporting schools on their mastery journey via the National Teaching for Mastery programme.

The following specialists work on behalf of North West 3 Maths Hub:

Cohort 2- Liz Cowdell (Liverpool), Amanda Sharples (Wigan) and Ruth McCarthy (Wigan)

Cohort 3- Joe Hetherington (St Helens), Amy Pierce (St Helens), Laura Jepp (Wigan), Atsoi Charway (Liverpool), Rachel Harper (Liverpool) and Andrew Symes (Sefton)

Cohort 4- Jade Dickenson (Wigan), Emma Dunbavand (St Helens), Mark Donga (Liverpool) and Danielle Woodcock (Sefton)

The next national recruitment round if you're interested in becoming a Teaching for Mastery Specialist will be open in spring 2020. Further details, including application form will be circulated nearer the time.

"Your attitude, not your aptitude, will determine your altitude."

Zig Ziglar

Challenging Topics at GCSE

A number of schools participated in this Work Group in 2018-19.

Reflections shared across the sessions show evidence of impact on children's learning. Some participants have reported back that they plan to share aspects of their learning from the course further through departmental sessions. In two schools the opportunity to continue the work has been given through weekly timetabled CPD sessions during curriculum time.

For many participants the impact was to review previously accepted practice and to try to promote a change in approach.

One participant commented they had "never really thought about how many pre-requisites there were to teaching trigonometry and how much understanding the students have to have regarding ratio."

Impact on teachers:

"The work group has enlightened me to the importance of mapping out the journey of key skills and concepts towards students mastering 'challenging topics."

"Given me an insight into the demands involved when curriculum planning to ensure that the building blocks are in place to tackle the challenge at GCSE."

"Developed an understanding of how to master a concept and given me the drive to develop my own teaching in a mastery style to alleviate later issues."

"Introducing challenging concepts much lower down school is vital to ensuring real understanding and a deeper learning journey for the students. In looking at how topics overlap it has enabled me to plan much more effectively for any misconceptions that may occur."

"Unpicking a topic as a team made us all think about how concepts interleave and where the main misconceptions come from. It gave us the chance to share the resources that really make the students 'think hard."

"This has highlighted the need to work together as a department with more consistent approaches to teaching and learning."

"The realisation that collaborative planning will reduce workload in the long run."

"All members of the team are invested in improving understanding and developing the resources for challenging topics."

"Linking topics and making a more cohesive 5-year pathway is now a focus of the department."

Impact on students:

"The pupils are becoming more independent learners – they have more confidence and interest to attempt the more challenging topics."

"Students have broadened their resilience to key questions"

"Students can go through and see the incremental steps to success."

The sessions have had an immediate impact on the pupil's engagement in lessons as reflected in the group evaluations and also reflective conversations. Further evidence of this will be in the final outcomes that are attained when the departments embed the new philosophy across the 5 years.

Mathematical thinking for the GCSE

This Work Group has been running for the past 3 years.

100% of the participants agreed that the overall outcomes of the Work Group were achieved, and that the tasks can be integrated across all strands of the curriculum.

Time spent reviewing the recent GCSE questions and looking at the break down of the three assessment objectives was an element of the programme that the teachers enjoyed and found valuable. Table discussions uncovered that most of the teachers were not familiar with the new assessment objectives and were keen to take this activity back to their departments.

Using GCSE questions throughout the programme to demonstrate the three tasks made the content relevant to the final exam, this aspect was hugely valuable to participants. The gap tasks were interesting, and the teachers were very positive to trying new approaches. The gap task feedback sessions were particularly powerful in terms of PD for the teachers.

Impact on teachers:

"Improved my confidence in planning and delivering lessons reflecting T&L approaches that support greater reasoning and problem solving in all lessons."

"It has made me think about the process of learning and ways that students can have misconceptions."

"Over time I have become complacent, and this workgroup has given me more motivation. It has inspired me to really think about what will work best for my students."

"The workgroup has made me re-evaluate the importance of promoting independent thinking, rather than be worried more about time constraints."

"I have encouraged colleagues to plan fewer worked examples and allow students to see/hear them working mathematically. This has generally been received well."

Impact on pupils:

100% of participants agreed that their involvement in the workgroup had impacted on their pupils outcomes. For those that tried and did not achieve what they wanted to in the lesson, they found that making adaptions and trying the approach again worked, rather than giving up on the idea.

"Over time this have improved the confidence of my pupils. I hope they will continue to try different techniques and remove the barriers that prevent them from pushing themselves."

"Students enjoyed the gap tasks as they gave them opportunities to be more resilient."

If you are interested in taking part in the Work Group, please visit: http://bit.ly/2OdHHr0

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:

25/03/2020 and 09/07/2020, 1:30 – 4:30pm at Carmel College

This programme is FREE of Charge.

Secondary Excellent Maths Teacher Programme

The programme is in the second year. 12 Secondary Maths teachers took part in this programme in 2018-19 with 14 currently participating in the programme.

Impact on teachers:

"The programme has had a big impact on my teaching with regards to planning for a deeper understanding rather than accelerating through content, it has given me a thirst for teaching for mastery."

"My marking and going through exams has changed. I now think through more questions seeing how the students can gain a deeper knowledge."

"I have seen the impact of using a variety of formative assessment strategies in the classroom, I am looking forward to developing these further with other classes."

Impact on students:

"The techniques are starting to build resilience in my pupils, small steps!"

"My students are beginning to appreciate how developing their reasoning skills is going to improve their knowledge and understanding."

"I have noticed that my pupils are more engaged during lessons. The major change is that they are more willing to have a go and appreciate that it doesn't matter if it's wrong."

"My pupils are being challenged in new ways, when they think they understand something I am challenging them with new ways of asking the questions."

"My students now have a better understanding of the expectations of a 'show that' question."

"I have shared with the department the importance of discussing assumptions and the possible impact on calculations using assumptions. Our students were not aware of this previously."

"Our Yr 11s are now being shown different methods for a question so they get used to evaluating."

Schools 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."

EOI are now being taken for a September 2020 start.

Contact lisa.bradshaw@three-saints.org.uk

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.

Spring 1

We are excited to be welcoming **Caroline Hamilton**, Head of White Rose Maths to deliver a workshop for our Secondary CPD network in the new year. Caroline will be sharing her expertise around the new White Rose Secondary Schemes and how these link to the new OFSTED Inspection Framework.

Wednesday 4th March 2020. 4-6pm

Mersey Fire & Rescue HQ, Bridle Road, Bootle, Liverpool

Spring 2

Bobby Seagull @Bobby_Seagull

Bobby Seagull co-presents the Monkman and Seagull Genius Guide on BBC2, has written a book, The Life Changing Magic of Numbers. Using a refreshing new approach that might easily encompass both Superman and the Football League Tables Bobby will combine personal anecdotes of learning maths as a pupil and now a teacher. He will share ideas of how to convey the importance of a thorough going understanding of maths that will be a help and strength in both academic and personal life based on an inspiring introduction to the subject at school.

Thursday 19th March 2020 4-6pm

St John Bosco Arts College, Storrington Ave, Liverpool L11 9DQ

Full programme details: http://bit.ly/2Oj6Gtc

ALL SESSIONS ARE FREE OF CHARGE FOR YOUR ENTIRE DEPARTMENT.

You must book beforehand by emailing Paula Foster at paula.foster@three-saints.org.uk

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 region.

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

$2x + 6 = 2(x + 3)$

$2x + 6 = 3x + 2$

What is the same and what is different?

NCETM Assessing Mastery KS3

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

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

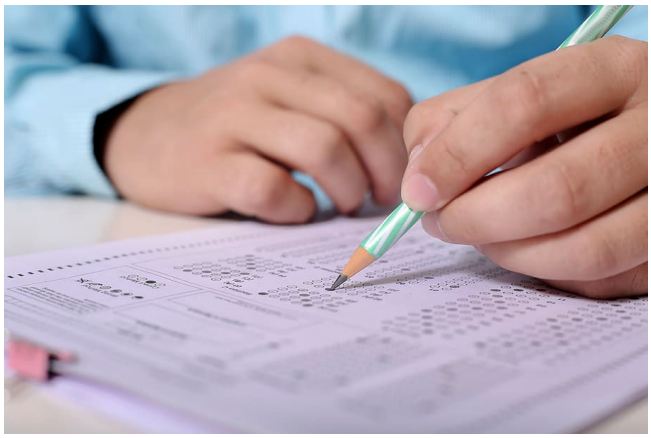
Thursday 27th February 2020, 1-4pm

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.

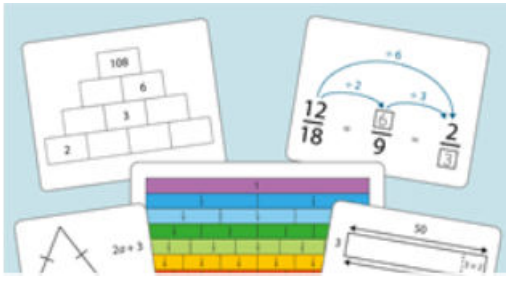
Dates and venue:

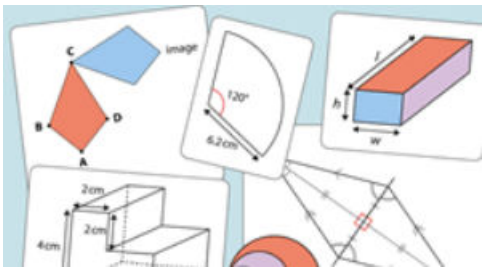
19/03/2020, 01/05/2020, 12/06/2020, 07/07/2020, 9:30 – 3:30pm

Mersey Fire & Rescue HQ, Bootle

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

NCETM Secondary Mastery Professional Development Materials





Teaching for mastery is teaching that aims for deep and sustainable learning; learning that is rooted in an appreciation of the connectedness of mathematical ideas and based on an understanding of the underlying structures. It emphasises the need to go beyond being able to memorise facts and practise procedures and routines.

Such teaching requires us to 'look through' the national curriculum statements of content and descriptions of what students need to be able to do. We must discern what students need to be aware of and understand in order to do these things fluently. These materials therefore offer a more 'fine-grained' description of the key themes and big ideas of the curriculum by detailing:

- six broad mathematical **themes**
- a number of **core concepts** within each theme
- a set of **'knowledge, skills and understanding' statements** within each core concept
- a collection of focused **key ideas** within each statement of knowledge, skills and understanding.

https://www.ncetm.org.uk/resources/53449

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

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:

11/03/2020, 23/04/2020 and 24/06/2020, 9:30 – 12:30

Venues to be confirmed

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

Secondary Head 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 3rd February 2020, Rainhill High School, Warrington Rd, Rainhill, Prescot L35 6NY
Wigan meetings - Tuesday 5th February 2020, Byrchall CPD Centre, Warrington Rd, Ashton-in-Makerfield, Wigan WN4 9PQ
Liverpool & Knowsley - Tuesday 25th February 2020, The Fire Service HQ & Conferencing, Bridle Rd, Bootle, L30 4YD
PRU/Special School - Wednesday 25th February 2020, Oakfield High School, Long Ln, Hindley Green, Wigan WN2 4XA

Further details: **http://bit.ly/2MqBgBI**
These sessions are free of charge

Mastering maths means pupils acquiring a deep, long-term, secure and adaptable understanding of the subject.

Achieving mastery means acquiring a solid enough understanding of the maths that's been taught to enable pupils to move on to more advanced material.

NCETM

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

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

Supporting Core Maths - AMSP collaboration

This Work Group has been operating for the past two years in collaboration with North West Maths Hub 1 and AMSP regional leads.

Schools involved in 2018-19 was a mix of institutions: 2 sixth form colleges, 2 grammar schools and 5 11-18 schools (including one faith school and one girls' school). 3 of these are located in the AMSP Liverpool Low Participation Area (LPA).

Schools feedback:

Several teachers commented on having developed a better understanding of the CM specification and implications for teaching. In particular, teachers commented on developing a much broader appreciation that teaching CM is different from teaching GCSE / A-Level maths, requiring different emphases. Discussions in meetings showed an increasing enthusiasm for more open-ended learning, and a willingness to embrace supposedly non-mathematical content (eg: news reports, other subject-knowledge, etc) as an integral part of CM lessons.

Discussion in meetings were particularly useful in deciding whether genuine reflection on practice was taking place. Evidence from the recording of meeting 2 showed that teachers were consistently seeking to ask, "How do you teach this?", or equivalent. A common thread was teachers seeking to move from a predominantly teacher-led environment, to one in which students investigated more for themselves, and to locate suitable resources.

Comments from participants' journals and reports relating to this outcome are particularly revealing:

"Tasks are more open-ended and students have more time to explore ideas."

"Having the opportunity to discuss the material with other colleagues has enabled me to produce much more creative revision resources."

"I started with little idea how to structure lessons and activities for Core Maths and where to look for resources. I have gained lots of ideas for lesson planning and resources which I have received from others."

"Students show increasing engagement and confidence in CM lessons, and are better prepared for CM examinations"

One teacher commented on students becoming "more and more confident in tackling new and unseen problems", whilst another stated that "students are more engaged and better prepared for exams".

"The work group has highlighted many areas of Core Maths that is different from traditional maths teaching and has enabled me to understand that the thinking you need to develop in your students is much broader and the aim is to develop students not only with an understanding of mathematical modelling in real life contexts but a deeper understanding of the world around them and the ability to critically analyse the data that they are given."

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.

Next meeting: Wednesday 12th February 2020 1pm-4pm

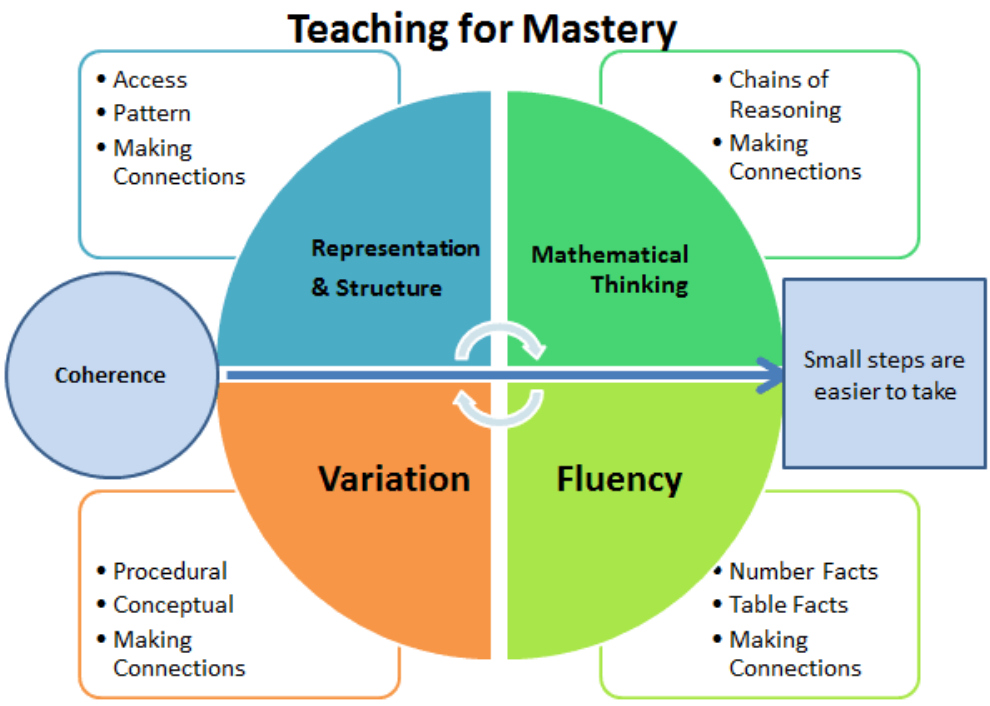
Calderstones School, Harthill Road, Liverpool, L18 3HS

To register for the event please follow the link and complete the form: https://forms.gle/H9ar8JqWs8bQK82b6

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, 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 teaching for mastery 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: 'Teaching for Mastery.' Sessions include an overview of teaching for mastery, 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.

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

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.

Follow us on Twitter

@NWmathshub3

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