|  |  |  |  |
| --- | --- | --- | --- |
| **NCP23-30: Specialist Knowledge for Teaching Mathematics (Secondary Non-specialist Teachers) Programmes** | | | |
| **Phase** | Secondary | **Strategic goal** | Secondary |
| **Project year** | 3 | **Type** | SKTM Programme |
| **Project codes** | NCP23-30a (summer start), NCP23-30b (autumn start) | | |

## **NCP23-30 Project details**

|  |
| --- |
| **Why is this project needed, what does it involve and what are the common features across the intended activity?** |
| There are significant numbers of people teaching mathematics in secondary schools without specialist initial teacher training. In 2021/22, Maths Hubs had the opportunity to provide a programme for secondary non-specialist teachers of maths, which had previously been realised by the Teacher Subject Specialism Training (TSST) programme. It has long been recognised that maths teaching is enhanced when the teachers are confident about the subject matter. Shulman (1986) and Ball (2008) identified *specialist knowledge* that teachers of maths uniquely need. This programme supports non-specialist teachers in developing the specialist knowledge (the blend of subject knowledge and pedagogical knowledge) for teaching maths, and is aligned with an overall Teaching for Mastery Programme designed to develop maths teaching in schools. It has an early start in the summer of 2023 (NCP23-30a) and an autumn start (NCP23-30b).  There are core materials for all SKTM Programmes, and it is expected that these are used by Cohort Leads as the basis of their programme. This programme has 18 core sessions (an introductory session then 17 sessions exploring each of the NCETM KS3 core concepts), and is designed to be the equivalent of 6 days.  Cohort Leads have the crucial role of bringing these core materials to life with participants, and developing them further to address local need. Cohort Leads will design follow-up tasks to enable practice transfer to the classroom. The programmes should be engaged with across the year (spread out over a minimum of two terms) to allow participants time to develop their practice and evaluate the impact of the adaptations made. |

|  |
| --- |
| **Who are the intended participants in this project and what is the expected commitment?** |
| This programme is provided for non-specialist teachers of maths in state-funded schools who fit the following definition: *‘A non-specialist teacher of mathematics is ‘a teacher that is currently teaching some mathematics or has commitment from a headteacher/executive head to teach some mathematics within the next year, who has not undertaken initial teacher training (ITT) in mathematics’.*  This could include:   1. non-specialist QTS teachers with an active commitment from their school to teach maths within the next academic year 2. non-specialist non-QTS teachers with an active commitment from their school to teach maths within the next academic year 3. overseas-trained maths teachers (from EEA or the big 4) with: 4. QTS status obtained through the mutual recognition route 5. residency in the UK and eligible to work in England 6. an approved teaching post in a secondary school or college with commitment from their new school to complete SKTM.   If there is sufficient space in the cohort, other teachers of maths who do not fit this definition but would benefit from this support may also participate.  The programme will be run over the equivalent of 6 days where there will be 18 core sessions. In addition to attendance at these sessions, participants will be asked to carry out follow-up tasks back in their schools to enable practice transfer to the classroom. It is recommended that each participant has a named mentor back in school who can follow up with a professional learning conversation after each session. |

## **NCP23-30 Project outcomes**

|  |
| --- |
| **What are the intended outcomes of this project?** |
| **Student outcomes**  Students will:   * develop a deep, secure and connected understanding of the maths they are learning * achieve both conceptual understanding and procedural fluency * think, reason and discuss their maths in order to deepen their understanding * have a positive attitude to maths. |
| **Practice development**  Participants will:   * explore and increase their use of a range of pedagogic approaches consistent with teaching for mastery * increase their confidence in planning for progression in maths. |
| **Professional learning**  Participants will:   * improve their subject and curriculum knowledge of secondary maths with a particular emphasis on mathematical structures in key areas. |

|  |
| --- |
| **How have previous participants/schools benefitted from taking part in this project?** |
| **2021/22 Participant survey responses**   * 97% agree that their subject knowledge has been enhanced * 92% agree that their knowledge of how to teach maths has deepened * 95% would recommend the programme to colleagues   **Quotes from participants**   * "This programme has deepened my understanding of the representations and given me new strategies that I can use with my students in the classroom" – Emily * "It is helping me reflect as a teacher. I don’t have a maths degree and although I can do the maths myself, it is all different from how I was taught before. My department has done a lot of work on teaching for mastery and this is helping me make sense of the work the faculty are doing" – Sam * "This is my first year teaching maths, and I hadn’t heard of teaching for mastery before – this programme gives you so many different ways of thinking and approaching problems" – Jessica * "In terms of planning lessons, I will now use the NCETM resources in my planning – I can now think more deeply" – Ali * "As a non-specialist, this course has enabled me to use the correct terminology and assisted in the way I structure my lessons" – Simon * "I am finding it really useful to see different ways of explaining or teaching concepts" – Su * "I find this really helpful […] it’s the ways to deliver the content that I find most useful, and correcting my misconceptions” – Phil * "It's making me see the different ways that concepts can be approached" – Jane * "It’s helping me build confidence, in particular with using correct vocabulary and learning different ways of delivering certain topics" – Carl * "From attending the programme, the non-specialist teacher's confidence in his maths and the teaching of maths has improved. The expectations of his students are now higher. During lessons, subject-specific language is being used by students and they are expected to explain their methods using this language. Manipulatives and representations are a regular feature of the teacher's lessons and this has supported students in understanding the structure of the maths" – Karen, Head of Maths Department |