

NPQ Leading Primary Mathematics

Programme Overview:

Our NPQ Leading Primary Mathematics programme aims to support teachers to develop their understanding of excellent mathematics teaching for mastery and the knowledge and concepts that support successful leadership of mathematics. This one-year programme helps participants develop informed and intentional approaches to instruction, curriculum, assessment, adaptive teaching, professional development and implementation for the teachers they lead.

For: Teachers who have, or are aspiring to have, responsibility for leading maths teaching in the primary phase.

Length: 1 year

Programme Components

Course	Input	Aims/Key content
Conference	Face-to-face conference	Aims: Introduces the programme and gives participants opportunity to experience the core components of each course. Key content: > The importance of mastery approaches in primary mathematics. > The importance of developing expertise as a leader of mathematics. > Overview of the NPQ programme as a vehicle for developing expertise. > Introduction to the simple model of memory and what it means for teaching, pupil learning and teacher learning. > Module principles, study and apply modules, and clinics are all explained and modelled with opportunity for practice.
Course 1 Culture and Learning	3 x asynchronous modules (study then application) 1 x synchronous clinic	Aim: Develop an understanding of mathematics mastery and learning from the perspective of a leader of teaching. Modules: Primary mathematics: a theory of change, Simple model of memory, Culture and behaviour. Key content: > Leading primary mathematics using a clear theory of change. > The importance of developing a positive culture of mathematics. > The alignment of school vision and aims with long-term goals for mathematics. > What it means to be 'evidence-informed'. > Thinking about pupil and teacher learning using the simple model of memory. > Cognitive load theory and the implications for teaching and learning. > The importance of early mathematics and prior knowledge for mastery. > Creating desirable difficulties through retrieval and practice. > Culture and the enabling conditions for effective teaching, pupil success and staff and pupil wellbeing. > Developing positive dispositions towards mathematics. > How leaders of mathematics can support teachers to optimise learning by establishing alignment and routines that support high, clear and consistent expectations.

Course 2 Assessment	3 x asynchronous modules (study then application) 1 x synchronous clinic	Aims: Develop an understanding of leading purposeful and responsive assessment practices in mathematics. Modules: Decision-driven data collection, Responsive teaching, Feedback. Key content: > Defining and exemplifying the key terminology that describes the characteristics of an assessment (e.g. validity, reliability, inference, performance, formative, summative). > The importance of recognising the limitations of inference. > Assessment practices that are designed to inform future decisions about teaching and learning (decision-driven data collection). > The purpose of formative assessment so that pupil needs can be best met. > The process of using formative assessment tools. > The importance of feedback in improving learning.
Course 3 Instruction	3 x asynchronous modules (study then application) 1 x synchronous clinic	Aim: Develop an understanding of leading expert instruction. Modules: Introduce, Adapt, Embed. Key content: > Introducing new ideas to pupils using explicit instruction to support their understanding. > Representing mathematical ideas using manipulatives and visual representations. > Using I-We-You to introduce new material in small steps, working through the material with pupils to check that they understand it and gradually withdrawing support so that pupils gain a level of independence. > Adapting instruction to best meet the needs of pupils. > Adaptive teaching using scaffolding as part of responsive teaching. > The meaning of inclusion and ensuring that all pupils have access to good mathematics teaching and can fully participate in school. > The role of forgetting and desirable difficulties in building learning that lasts. > Effective use of retrieval, practice, spacing and group work in the classroom. > Developing problem-solving and reasoning in mathematics. > The role of classroom talk in developing a mastery of mathematics.

Course 4 Curriculum	3 x asynchronous modules (study then application) 1 x synchronous clinic	Aim: Develop an understanding of leading the development of curriculum with clear purpose, aims and sequencing. Modules: Curricular purpose and content, Sequencing learning, Early mathematics Key content: > Pupils' knowledge and understanding of mathematics is dependent upon a detailed and coherently sequenced mathematics curriculum. > Careful and purposeful planning of manipulatives, representations and vocabulary underpins a successful curriculum for mastery. > Pupils need sufficient time to master one element before moving on to the next. > End points for a curriculum can be broken down to sequence the content in further detail. > The importance of considering sequencing when designing a curriculum. > Sequencing problem-solving and reasoning opportunities to deepen understanding. > The importance of revisiting key concepts in a curriculum so that pupils can develop a deep and flexible understanding. > The importance of early mathematical development in later success in mathematics. > The importance of a clear and well-sequenced early mathematics curriculum so that pupils can achieve the mathematics Early Learning Goals. > Transition from EYFS to year 1 in mathematics.
Course 5 Professional Development	3 x asynchronous modules (study then application) 1 x synchronous clinic	Aims: Develop an understanding of expertise and how leaders can support teachers to keep getting better. Modules: Developing expertise, Mechanisms for behaviour change, Enabling continual improvement. Key content: > What is meant by expertise and how it can be developed. > Engaging with a clear theory of change for professional development that is needs-based and evidence-informed. > How leaders can facilitate lasting change in teachers' capabilities and understanding through utilising mechanisms for behaviour change. > Tailoring professional development to meet individual teachers' needs. > The importance of a supportive professional environment for teacher improvement. > The characteristics of a supportive environment for teacher development.

Course 6 Implementation	3 x asynchronous modules (study then application) 1 x synchronous clinic	Aim: Develop an understanding of effective implementation in schools. Modules: Explore, Prepare, Deliver and sustain. Key content: > How school leaders can diagnose the needs of their school and draw on evidence to identify solutions. > Exemplification of the implementation cycle. > Preparing for implementing change. > How school leaders can deliver and sustain change.
Assessment Preparation Package	1 x asynchronous webinars (in two parts) 1 x synchronous clinic	Aim: Develop an understanding of the NPQLPM assessment process. Key content: > The format of the NPQ assessment. > Applying knowledge and understanding to an example scenario. > Understanding what makes an effective assessment response.

Curriculum Sequence

Our National Professional Qualification in Leading Primary Mathematics is a 12-month programme which has been broken down into six courses. The order in which participants experience each course has been designed in such a way that previous knowledge is built upon logically. Below is an explanation of the curriculum decisions we have made, why we have made them and how we believe that these decisions will support your leaders to keep getting better.

The first course participants encounter is 'Culture and Learning'. This course comes first because the ideas on this course frame the rest of the programme content. Leading mathematics requires secure understanding of what is meant by 'mastery' coupled with expertise in planning for and driving an effective culture for learning. It explores developing a theory of change, building positive attitudes to maths and ensuring classroom culture is conducive to effective mathematics teaching. It also builds participant understanding of how people (pupils and teachers) learn. Learning can helpfully be understood as a lasting change in pupils' capabilities or understanding, and how learning happens can be understood with reference to how memory operates. These ideas underpin much of the rest of the programme.

Courses 2, 3 and 4 are 'Assessment', 'Instruction' and 'Curriculum'. These three courses represent the fundamental knowledge domains those leading primary schools need to understand in relation to mathematics. Assessment, particularly formative assessment, is used to form decisions about how to teach. Instruction covers key ideas about how to teach to enable all pupils to learn, including the effective use of manipulatives, visuals and talk. The 'Curriculum' course contextualises these ideas further by rooting them in curriculum design and sequencing, before focusing on the importance of early mathematics. All three courses are underpinned by the important principles of learning covered in course 1.

Courses 5 and 6 are 'Professional Development' and 'Implementation'. These focus on the expertise those leading mathematics will need to drive improvements in teaching. Teacher development is a crucial lever in improving teaching of mathematics and participants will engage in evidence as to how to effectively design and deliver professional development to support maths teaching in their context. Implementation is the wider process of driving improvement where those leading mathematics need to carefully consider what they do to drive improvement, how they do it and crucially, how they operate as part of the wider school system. This circles back, in part, to course 1 and the deliberate planning for improvement through a theory of change.