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| **NCP23-26: Specialist Knowledge for Teaching Mathematics (Primary Teachers) Programmes** |
| **Phase** | Primary | **Strategic goal** | Primary |
| **Project year** | 7 | **Type** | SKTM Programme |

## **NCP23-26 Project details**

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| **Why is this project needed, what does it involve and what are the common features across the intended activity?** |
| 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. We view specialist knowledge as a blend of subject knowledge and pedagogical knowledge. This programme supports primary teachers to develop specialist knowledge for teaching maths, building on the primary maths National Curriculum to develop distinct pedagogical decision-making which impacts on classroom practice. The programme is aligned with an overall Teaching for Mastery Programme designed to develop maths teaching in schools, and would be highly appropriate for teachers working in a school that is actively committed to the Teaching for Mastery Programme. This successful programme is now in its seventh year. The Primary Teachers SKTM programme consists of the equivalent of 4 days, spread out over a minimum of two terms to allow participants time to develop practice and evaluate the impact of adaptations made. Professional learning and practice development continue throughout the period of the programme, with participants implementing new ideas into their daily practice. There are two pathways as part of the SKTM Primary Teachers Programmes. Participants should participate in only one pathway in any one year – the order does not matter. Each pathway consists of four core modules.

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| Modules | **Pathway 1: Number**  | **Pathway 2: Spatial Reasoning** |
| Number Sense | What is spatial reasoning? |
| Additive Reasoning | Reasoning about shapes |
| Multiplicative Reasoning | Spatial and geometric reasoning (including position, direction and movement) |
| Fractions | Spatial reasoning and number |

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| **Who are the intended participants in this project and what is the expected commitment?** |
| This programme is designed for primary teachers who would like to further develop their specialist knowledge for teaching maths. It will be particularly relevant for teachers that have moved phases or teachers that have not received maths-specific training.The programme will be run over the equivalent of 4 days where there will be 4 core modules. 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. |

## **NCP23-26 Project outcomes**

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| **What are the intended outcomes of this project?** |
| **Pupil outcomes**Pupils will: * use appropriate representations to support their mathematical work
* be able to explain their maths and their mathematical thinking using appropriate language
* positively engage with maths that challenges them.
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| **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.
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| **Professional learning**Participants will: * enhance their maths subject knowledge with an emphasis on the key concepts, the representations and the language used to help pupils develop the mathematical area covered (e.g. number sense, additive reasoning, multiplicative reasoning, fractions, spatial reasoning)
* identify common misconceptions and ways of addressing these to help pupils master important concepts
* identify pedagogical approaches that will enhance teaching and learning, and know how to plan for these
* develop an understanding of key principles and approaches associated with teaching for mastery.
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| **How have previous participants/schools benefitted from taking part in this project?** |
| **2021/22 Participant survey responses**93% agree that the programme made a difference to pupils’ mathematical language, attitude, and representations of their work. This was noticed by pupils’ use of:* practical and visual representations of the structure of maths that supported understanding
* stem sentences that aided their mathematical explanation
* understanding and knowledge to make decisions about different methods and problem-solving strategies to use.

96% agree that their maths knowledge has been enhanced as a result of the programme and would recommend it to colleagues. |