

Mathematical Thinking for GCSE

Information Sheet

NCP18-13



Overview

Teachers or departments keen to address the reasoning and problem-solving challenges of the mathematics curriculum and its assessment at GCSE are encouraged to take part in this project. Work Groups will explore professional development activities focusing on practical and accessible classroom-based approaches. The activities themselves also offer a model for wider department engagement with professional development processes, and hence could provide the basis of an effective department improvement programme in this area.

Who is this for?

All secondary maths departments and teachers wishing to begin or continue a programme of professional development to address the reasoning and problem-solving challenges of the mathematics GCSE. The approaches attempt to address not only the longer development of these skills across all teaching but also the needs of current KS4 pupils as they approach GCSE.

In order to maximise the wider impact of the professional development across the department, it is suggested, where possible, that each school sends two members of department, at least one of whom is experienced and has some leadership responsibility within the department.

What is involved?

- 4 x 1/2-day workshops spread over three terms
- Gap tasks between the workshops will include Lesson Study, allowing wider department participation in the professional development.
- As part of the professional development, there will be an evaluation process focussing on the impact of Work Group

Intended Outcomes

Participant teachers, and their departments:

- will acquire a deeper understanding of the role of reasoning and problem solving in the mathematics curriculum, and how these skills are tested at GCSE
- will broaden their repertoire of classroom approaches to support the development of pupil's mathematical reasoning and problem-solving skills in all lessons
- will understand how to plan for further improvement to embed and sustain progress in this area.
- will begin to see pupils demonstrate increased confidence in reasoning and problem-solving while deepening their understanding of the mathematics content itself.

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The wider context

Collectively, the network of Maths Hubs across England work on projects around national maths education priority areas. One of those priorities includes the phrase 'supporting schools and colleges to address the immediate challenge of teaching the 9-1 GCSE.' Each Maths Hub participating in a national project runs a local Work Group, where teachers come together over a period of time to work on areas defined by the project. All Work Groups are subject to a common evaluation process, which collectively provides a body of evidence on the project's outcomes. So, your participation in this Work Group will contribute to your own professional learning, and that of your school colleagues, as well as making a contribution to the improvement of maths education at a national level. This Work Group extends work started in all Maths Hubs in autumn 2016.

Expectations of participants and their schools

- Schools will need to commit to the release of the same nominated teacher(s) for all four workshops and to support them in the gap tasks. This will include supporting wider staff and department engagement with a Lesson Study between each workshop.
- The department will also support the participating teachers to summarise the impact of Work Group participation as part of the professional development and Work Group evaluation.

Funding

The Work Group is offered free to all state-funded secondary schools in England

Who is leading the Work Group

Nick Mulligan – Tarleton Academy, South Ribble

When are the Work Group

Work Group 1 – 15/11/18

Work Group 2 – 24/1/18

Work Group 3 – March Date to be confirmed

Work Group 4 – July Date to be confirmed

If you're interested, what next?

Should you wish to apply for this work group please contact the NNW Maths Hub Co-ordinator and Workgroup Lead

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