

MATHEMATICAL THINKING FOR GCSE

A project focusing on ways to help GCSE students improve their mathematical thinking

The Mathematical Thinking for GCSE project is for secondary maths teachers looking for practical and theoretical elements to address their students' GCSE attainment.

The stated aims of the KS4 Programme of Study are that, through working on the content, students should develop mathematical fluency, mathematical reasoning and problem solving. While mathematical thinking is a key feature of all of these, the focus of this Work Group is to support teachers in developing their understanding of mathematical thinking as it relates to problem-solving and reasoning, using practical task types to explore what it means for students to get better at mathematical thinking and what this looks like in the classroom.

Who can take part?

This is for teachers of KS4 who want to further develop their pedagogical and theoretical understanding of developing mathematical thinking, and practical classroom strategies to explore these ideas. Lead participants will be expected to lead developments from the Work Group in their own department and so should have the opportunity and authority to do this effectively.

Departments that have already engaged with the Work Group have the opportunity to continue with the Work Group structure in order to explore further and think more deeply about supporting mathematical thinking in the classroom by participating in a second 'deepening' year.

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What is involved?

Exam boards often note that, when students come to GCSE exams, AO2 and AO3 are frequently poorly addressed. This Work Group is designed to:

- offer teachers support so that they are better equipped to help all students develop their mathematical thinking, ultimately preparing them for the challenges of the GCSE and beyond
- support teachers in understanding and using participation in a Work Group as the basis of collaborative continued professional development for themselves and within their department.

The sessions will be a blend of face-to-face activities and online collaboration.

- 6 sessions (one each half term) – 2 hours
- Collaboration through the online Basecamp community
- Try out aspects of the Work Group back in school and record your reflections
- Contribute to the Maths Hub and NCETM final evaluation

Dates:

Session 1: Tuesday 14th December 2:00pm – 4:00pm **(Online)**

Session 2: Tuesday 18th January 2:00pm – 4:00pm **(Online)**

Session 3: Wednesday 9th February 2:00pm – 4:00pm **(Online)**

Session 4: Tuesday 1st March 2:00pm – 4:00pm **(Online)**

Session 5: Wednesday 20th April 2:00pm – 4:00pm **(Online)**

Session 6: Thursday 12th May 2:00pm – 4:00pm **(Online)**

What will you learn?

Participants and their schools will:

- increase their experience and understanding of the role of reasoning and problem-solving in the curriculum
- understand how these are tested at GCSE
- understand effective collaborative approaches to embed developments department-wide
- demonstrate improved confidence in planning and leading lessons that support deep mathematical thinking
- consider next steps for further deepening, developing and reviewing mathematical thinking.

What is the cost?

The Mathematical Thinking for GCSE project is **fully funded** by the Maths Hubs Programme so is **free** to participating schools.