NCP 19-17 Mathematical thinking for GCSE

This course provides a great opportunity to develop Mathematical Thinking within a Mathematics Department. It is a course for postholders or potential postholders within a Mathematics department who will be able to cascade the content to the department as a whole.

Aims: To support teachers and departments to:

1. Prepare pupils for the reasoning and problem solving challenges of the new GCSE in parallel with embedding the wider development of these skills across all key stages
2. Promote effective models for department PD and support improvement planning.
3. Use participation in a workgroup as the basis of continued professional development work

Workgroup Outcomes:

Professional learning	***Teachers attending the workshops and other teachers in their departments will increase their experience and understanding of:*** • the role of reasoning and problem solving in the curriculum and the teaching and learning needed to support pupils develop these skills across all teaching [Aim 1] • how these skills are tested in the new GCSE and what particular T&L approaches can support current KS4 pupils address these challenges [Aim 1] • effective collaborative approaches to embedding developments more deeply [Aims 1 & 2]
Teaching and/or leadership practice	***Teachers attending the workshops and other teachers in their departments will have gained:*** • improved confidence in planning and delivering lessons reflecting T&L approaches that support greater reasoning and problem solving in all lessons [Aims 1 & 2] • broadened their repertoire of activities/approaches and resources that develop pupils' mathematical reasoning and problem solving skills across all teaching, including supporting pupils address challenges of new GCSE questions [Aims 1 & 3] • the opportunity to evaluate the impact of participation in the WG and will have identified actions to continue improvement in this aspect of teaching & learning [Aim 3]
Whole school/ departmental policies and approaches	***Teachers and departments will have:*** • opportunity to produce resources that exemplify key teaching and learning approaches to support work in reasoning and problem solving [Aims 1 & 2] • experienced department processes for collaborative development [Aims 2 & 3] • opportunities to lead and develop PD in their own departments [Aims 2 & 3] • considered how collaboration and PD might affect wider department PD approaches [Aims 2 & 3] • considered next steps for further implementing changes as a result of participation in the WG [Aim 3]
Pupil achievement, attitudes, participation or experience	***Pupils may begin to demonstrate:*** • improved confidence when they engage in mathematical reasoning and problem solving [Aim 1] • the use of these skills to solve problems but also deepen their understanding of mathematics content itself [Aim 1] • Improved attitudes towards mathematics and the value of reasoning and problem solving skills [Aim 1]