



## Focus of the Month

### November 2017

## Enriching Key Stage 3 and 4 students' experience in Mathematics

This month we are focusing on the resources, professional development and events that the Further Mathematics Support Programme (FMSP) offers to schools to support the teaching of Key Stage 3 and 4 mathematics in secondary schools.

### Resources

We have a range of GCSE resources specifically designed to support teachers and students at KS4. These can be found by clicking the 'FREE 11-16 RESOURCES' button on the [enrichment page](#) of our website. Each resource has been scored to indicate the level of accessibility.

Problem solving has been given more prominence in the new GCSE Mathematics, but it is often difficult to find good quality materials which engage, stretch and challenge students. The FMSP produces resources for students at GCSE with the aim of encouraging students to think more deeply about the mathematics that they study, to enrich their understanding, to develop their problem-solving skills and to encourage the study of mathematics beyond GCSE. These include:

- [GCSE Problem Solving Materials](#)
- [GCSE Extension Materials](#)
- [Groupwork problems](#)
- [Problem solving postcards and business cards](#)

In addition, we are developing resources to support teachers in developing problem-solving skills throughout the 11-16 age range; these will also be freely available from the website via the [enrichment page](#).

MEI has developed a [problem solving guide](#) for all teachers of GCSE and A level. A number of example resources have also been produced, along with PowerPoint versions to use in the classroom.

[Materials developed for our annual Maths Feast competition](#) provide a brilliant source of problem-solving materials to engage, stretch and challenge students across a wide

variety of topics. They include activities which look at concepts outside of the GCSE curriculum to enrich the experience of your students and extend their knowledge.

[Research by the Institute of Education](#) suggests that exposing students, especially girls, to more challenging mathematics helps build confidence in their ability to do mathematics and contributes to their decision to continue with mathematics at A level. The AQA Level 2 Further Mathematics is an additional qualification for KS4 students which deepens understanding of Higher Tier GCSE Mathematics and introduces students to advanced concepts. [Resources for teachers and students for this course](#) are available for free on Integral, through your departmental FMSP login. Alternatively, access is available through a [paid subscription](#). In addition, MEI has produced many [other free resources](#) to support the teaching of GCSE mathematics.

## Professional development

The FMSP provides professional development and resources to support teachers in stretching and challenging students working towards the [Higher Tier GCSE Mathematics](#) (or equivalent). We have developed a number of courses specifically to support the teaching of the new GCSE Mathematics:

The new three day [Reasoning, Extending and Problem Solving for 11-16 students](#) course focuses on breaking down the different component skills for problem solving into more manageable chunks for younger students. The materials will be available for teachers to use in their own schools and will be based on topics met throughout the secondary curriculum. There is also a focus on sharing good practice and attending teachers will be asked to work with a colleague to share these ideas and resources.

The [KS4 Extension and Enrichment course](#) is a two-day course, free to state-funded institutions, which focuses on developing problem-solving skills and teaching approaches that enrich the student experience. Bookings for the current series are open and some venues are almost full, so if you or a colleague is interested we would advise you to [book ASAP](#).

The [GCSE Problem Solving Courses](#) are one-day courses looking at how problem solving can be incorporated into your teaching practice. They support the changes in the new curriculum with reference to sample assessment materials from all examination boards. To find details of courses running locally, please see our [Teacher Events](#) page, or contact your local [Area Coordinator](#).

We have created a [Live Online Professional Development](#) (LOPD) course to support GCSE Problem Solving; please complete an [expression of interest](#) if you are keen to take part in this course.

MEI also provides professional development for KS3 and KS4 mathematics teachers:

- [Teaching GCSE Mathematics](#) (TGM) is an extended course for those new or returning to teach secondary mathematics and supports developing confidence, subject knowledge and teaching skills.
- [FRESH courses](#) are a suite of courses designed for experienced teachers. The family of courses currently includes: FRESH approaches to teaching GCSE Mathematics; FRESH strategies for teaching problem-solving in mathematics; and FRESH ideas for students learning through GeoGebra.

## Events

The [Maths Feast](#) is a team competition for Year 10 students, testing their mathematical, communication and teamwork skills. Maths Feasts are held across England and schools will be able to book via the website from the middle of November. Participants can take the materials away to use them with other students back in their schools.

FMSP Area Coordinators organise many local enrichment events for KS3 and KS4, all of which can be found on the [FMSP Student Events page](#). These often feature well known speakers, quizzes and workshops which showcase mathematics being used in interesting and useful ways.