



Focus of the Month November 2016

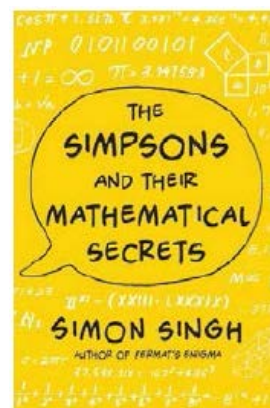
Key Stage 4: Enhancing students' experience in Mathematics

This month we are focusing on the resources, professional development and events that the FMSP offers to schools to support the teaching of mathematics at KS4.

Competitions

We know that students enjoy taking part in competitions – we had well over 300 entries for our [badge competition](#) earlier this year and are looking to run it again, starting in the spring term. This year's winning design will be produced as a badge which will be given out at Maths Feast events in spring 2017 (see below for more details of this competition).

We also know that the competitive edge encourages engagement and interest! We are currently running a [problem solving competition](#) with the chance to win a signed copy of Simon Singh's book '*The Simpsons and their mathematical secrets*' – it is a great opportunity to develop problem solving skills in the classroom.



Resources

We have a range of [GCSE resources](#) specifically designed to support teachers and students at KS4. We have highlighted some of these:

[Problem solving](#) has been given more prominence in the new GCSE Mathematics which is currently being taught to Year 10 students; it is often difficult to find good quality materials which engage, stretch and challenge students. The FMSP produces resources for students at GCSE. The aim of these resources is to encourage 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 Posters

The [Maths Feast materials](#) 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 at KS4 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 through the MEI website thanks to sponsorship from AQA.

There are many other resources which MEI has produced to support the teaching of GCSE mathematics which can found [here](#).

Professional Development

The FMSP provides professional development and resources to support teachers in stretching and challenging KS4 students working towards the higher tier Mathematics GCSE (or equivalent). We have developed a number of courses specifically to support the teaching of the new GCSE Mathematics.

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. Courses for the current series are almost all full, but if you express an interest, we will look at the feasibility of running these courses next year.

The **Higher Tier GCSE Mathematics Course** is a one-day course focusing on strategies and resources to teach some of the new Higher Tier GCSE content. These can be run in your local area if there is demand; if you are interested in organising one of these courses for your school and other local schools then contact your Area Coordinator who can put you in contact with a local course leader.

Two [new courses](#) to support teaching and learning have been developed; **Developing reasoning and proof at Higher Tier GCSE** and **Functions and graphs in the new Higher Tier GCSE** are currently running across the country. There are a few spaces still or, if your local course is full, contact your Area Coordinator who may look to running additional courses in the future.

The **GCSE Problem Solving Courses** are one-day courses looking at how problem solving can be incorporated into your teaching practice. It supports 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 pages](#), or contact your Area Coordinator.

We have created a [Live Online Professional Development \(LOPD\) course](#) to support **GCSE Problem Solving**; this five session course will start in January 2017 and there are a few spaces still available.

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. There are no finals so participants can take the materials away to use them with other students back in their schools.

Last summer we supported schools in running their own internal Maths Feast, called **Summer Snacks** and nearly 60 schools took advantage of this. We provided all materials electronically and the lucky few who applied early got lots of paper materials too! Schools who planned to run their Snacks with over 40 students could also arrange to have someone from the FMSP come to lead the event.

FMSP Area Coordinators organise many local [enrichment events](#) for KS3 and KS4. These often feature well known speakers, quizzes and workshops which showcase mathematics being used in interesting and useful ways.