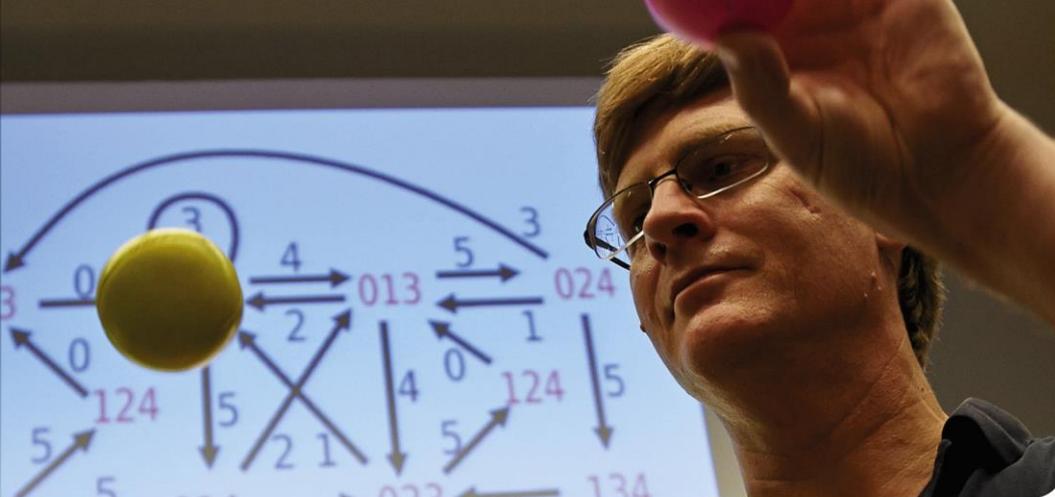


Spring 2014

South West
Regional

NEWSLETTER



The National Picture

The Department for Education is to provide Mathematics in Education and Industry with substantially enhanced funding for a further three years to continue and extend the work of the Further Mathematics Support Programme, working with the National Centre for Excellence in Teaching Mathematics and the Institute of Education.

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The FMSP will expand its work to improve access to Further Mathematics tuition, and to increase the numbers of students in England studying advanced mathematics post-16. The FMSP will continue to have a strong emphasis on teachers' professional development, to help meet the increasing demand from students to study Mathematics beyond GCSE level.

UKMT/FMSP Senior Team Mathematics Challenge Final

On February 4th at the Camden Centre, London, 59 teams competed in the 2013/14 STMC Final. The teams were all winners from the 55 regional heats involving 1146 schools and colleges.

The overall champions were the team from Hampton School. Alton College were in second place with Rainham Mark Grammar School taking third. The poster competition, on the theme of *Ruled Surfaces*, was won by The Grammar School at Leeds. The competition was again sponsored by Rolls-Royce plc. Dr Peter Neumann presented the prizes and congratulated all the participants on their achievements.

FMSP Wales

FMSP Wales has secured continued funding for the project from the Welsh Government for 2014-15 and 2015-16. For further information see the FMSP news announcement at:

www.furthermaths.org.uk

Extended professional development courses

The FMSP provides a range of professional development courses, such as for STEP/AEA and for Key Stage 4. It also has an extensive programme of online professional development.

For more details on the FMSP CPD provision, please see:

www.furthermaths.org.uk/teacher_area/cpd.php

There are also extended courses that are taking applications:

Teaching Further Mathematics

enables participants to study the content of Further Mathematics from a teaching and learning perspective. The course starts in July and applications are now being taken. For more information and an application form please see:

www.furthermaths.org.uk/teacher_area/tfm.php

Teaching Advanced Mathematics

is designed to give teachers the skills and confidence to teach A level Mathematics effectively, focusing on subject knowledge and pedagogy. The Masters-accredited course fees are £600 but *schools and colleges of participants are entitled to receive £1200 in March 2015*, in recognition of the support they provide to enable one of their teachers to take the course. For more information please see:

www.mei.org.uk/tam

Professional Development

Practical Activities In Decision Maths

Dice, polyhedra made from Polydron, platonic solids, frustrating cube games, word searches, Tarsia puzzles, playing cards, and mixed problems all formed part of the inspiring and entertaining “Practical Activities in Decision maths” CPD, run by Jeff Trim (FMSP Area Coordinator in the South East) at the University of Plymouth, and at the Maths Network in Chippenham in January.



Teachers began with a bit of “shut eye” and Imagineering, which rapidly developed into Schegel diagrams, graph theory and links to Euler, Hamilton, Dijkstra, Prim and Kruskal. Frustrating problems involving cubes were solved by putting graph theory into practice and definitions were reinforced through a great variety of games and challenges.

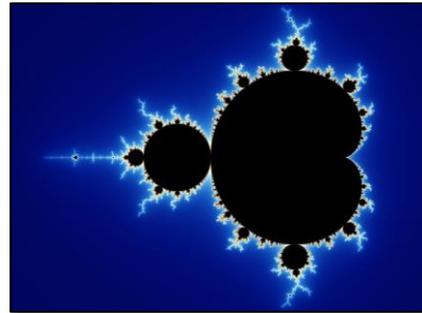
Problem Solving & STEP

In November Parkstone Grammar School hosted us for a Teacher & Student Problem Solving/STEP/Enrichment day. The staff spent some time discussing and working on some STEP level standard material and then had the chance to help their own students tackle the same material. Read more details in the ‘Student’ section below. Several other days like this have run around the region, and look out for other opportunities to get involved in similar days in the future.



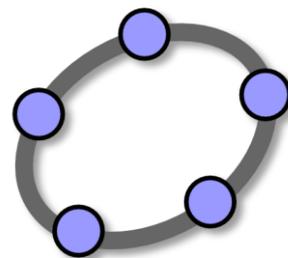
Further Pure Day

In October Bournemouth School hosted a day with Ben Sparks focussed on the Complex Numbers and Group Theory in the Further Pure specifications. A full day of intense mathematics, group activities and philosophical discussions left all feeling excited about the topics and the chance to teach them to students.



Geogebra Day

In November Taunton School hosted another day with Ben Sparks, grappling with the free Geogebra software. Teachers from around the South West had the chance to get their hands dirty designing and using resources in Geogebra. Tom Button and Pat Cobb also ran a similar day in Stroud in November. This sort of day, with plenty of time to play and learn by making mistakes, has proved popular and we are hoping to run another day in Somerset early next term.



4x Project

The Teacher Network based at Poole Grammar School held two useful days, one on VLEs and Geogebra in October, and one with Rob Eastaway in January. Rob gave a fascinating and motivating presentation on how to raise the profile of problem solving, and particularly good ways to provoke thinking with examples of Fermi problems. Here’s one to try:

“How much money does your local McDonalds take over the counter in an average day?”

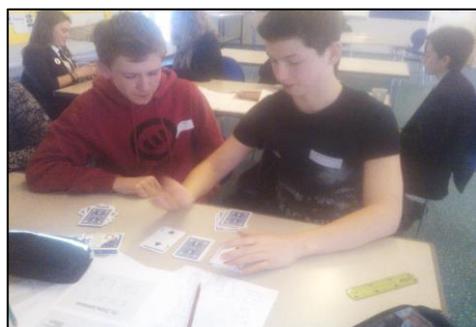
Getting within a factor of two is always a good sign. Working out how to find the ‘true’ answer is a secondary challenge!

Enrichment for Students

Year 10 Gifted & Talented days

We are running a series of days for year 10 gifted and talented students across the south west. In these we have three sessions. The first involves a problem solving task about cutting a pizza in an unconventional way which leads to ideas about plotting graphs of polynomials if their roots are known. The second is a Further Mathematics taster session on matrices and transformations, which links the students' knowledge from GCSE to matrices and ends up with looking at how matrices can be used to predict the motion of complex mechanical systems and how they can be used to locate the home of the serial killer, Jack the Ripper. Finally after lunch we look at a mathematical card trick, making predictions about how to implement the trick in different formats and also proving algebraically why the trick actually works.

The photo shows some students doing the card trick at Kilve Court near Bridgwater in Somerset.



Problem Solving & STEP

As mentioned in the Professional Development section, we ran a joint staff & student day on Problem Solving and STEP level work at Parkstone Grammar School in November. Staff tackled some STEP problems and discussed tactics to deliver content in school, while students got to hear from mathematician Tom Begley (currently doing a PhD at Cambridge) before splitting up to tackle various problem solving activities, including the Fun Maths Roadshow, some STEP/AEA level problems and some sessions on other investigation type problems. We all came back together for a final session with Ben Sparks on "Rumours of Other Worlds".



Maths Team Challenges



Poole Grammar School hosted one of the FMSP/ UKMT Senior Team Challenge Heats (winners above). The competition took place around the country with heats at Hardenhuish School, Wycliffe, Exeter University, Coombe Dean School, Truro and UWE.

While the Senior Team Challenge is well established the Year 10 Team Competition is a recent arrival on the scene, but is gaining huge momentum around the country. Year 10 heats have been held in the SW this year at Exeter, Bristol, Chippenham, Cheltenham, Weston-super-Mare, Bath, and Truro, and are still to come in Torquay, Dorchester, Plymouth, Barnstaple, and Salisbury.

If you've missed out on entering a team this year then keep an eye out for dates of a heat near you next year! The competition has proved stimulating and exciting with positive feedback from students and staff around the country.

There are various 'training' events for both the SMTC and the Year 10 Challenge, which always prove to be great fun in their own right, most recently at Blandford School, Dorset, and Plymouth University in October.

Take Maths To The Limit

In January Canford School hosted a year 12 Maths conference called "Take Maths To The Limit". Speakers included Sharon Tripconey (on Networks and Discrete Maths), Ted Graham (What is beyond Maths at A-level), and Ben Sparks (Pretty Irrational). A fiendish quiz over lunchtime got students Grappling with Group Theory, Computing Continued Fractions and Dabbling in Dimensional Analysis, with great success.



Other News and Events

Other School Visits & Events

On Wednesday 5th March 65 students took part in an enrichment morning at Thomas Keble School, Stroud. The sessions included a talk on maths and careers, a challenging team maths competition and a look at some interesting applications of A-Level maths. A similar event is taking place at Hardenhuish School, Chippenham, on 25th March (fully booked) and other enrichment mornings are being planned for the Forest of Dean and Cheltenham in the summer term.

Members of the FMSP team are often able to visit individual schools to offer enrichment lectures/workshops, for students (or for staff!). Among other visits Ben has run enrichment sessions in Commonweal School in Swindon, Wellsway near Bristol, West Somerset Academy in Minehead, and IPACA in Portland. If you're keen to boost A-level uptake for Maths and Further Maths why not get in touch to see if we can help.



Mailing List

If you want to be on the FMSP South West Mailing List, to receive info on upcoming events, enrichment, and professional development, you can sign up online by following this link: <http://bit.ly/FMSPSWMailinglist> and filling in the form there. Enjoy!

Upcoming Events

Some significant upcoming events in the South West: (correct at time of printing)

- **31st March:** South Wilts Grammar
Year 10 one-day Maths Conference (contact Jo Sibley)
- **1st May:** Chippenham Maths Network
Using Dynakars (contact Pat Cobb)
- **16th May:** The Met Office, Exeter
Year 10 Maths Challenge Team Final (contact Ted Graham)
- **20th June:** Plymouth University
"Let Maths Take You Further" Year 12 one-day Maths Conference (contact Ted Graham)
- **23rd June:** University of Bristol **AND**
25th June: Bath University
"Take Maths Further" Year 10 one-day Maths Conferences (contact Patrick Cobb)
- **8th July:** Chippenham Maths Network
"Up Close with an Enigma Machine!" (contact Pat Cobb)



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South West Events Pages

For teachers:

www.furthermaths.org.uk/?section=regions&page=SW_CPD

For students:

www.furthermaths.org.uk/?section=regions&page=SW_enrichment

