



The Advanced Mathematics Support Programme and University Partnerships

Phil Chaffé, Director for University Progression

MEI and the AMSP



Advanced Mathematics
Support Programme



NCETM



Curriculum and Assessment



Higher Level Problem Solving



MEI Conference



Oak National Academy



The Big Earth Data Project



Data Science



FE Maths CPD Programme



Teaching GCSE Mathematics



Integral



Adult Maths Education and
Skills



Maths Progression
Programme



Primary Mathematics

A very brief history of the AMSP

- 2000 – 2005
Enabling Access to Further Mathematics
funded by the Gatsby Charitable Foundation
- 2005 – 2009
The Further Maths Network
42 Area Coordinators based in universities, LAs and schools
- 2009 – 2018
The Further Maths Support Programme
20 ACs based in universities, LAs and schools
- 2018 – 2025
The Advanced Maths Support Programme
c 40 ACs based in universities, LAs and schools

The AMSP to 2025

Student Engagement

Teacher Support

Core Maths

Higher level problem solving

Further Mathematics

Equality, Diversity and Inclusion

Enrichment events

GCSE

A level

2025 Changes to the AMSP

Student Engagement

Teacher Support

Core Maths

Higher level problem solving

Further Mathematics

Higher Level Mathematics Achievement Programme

Girls' Progression Programme

Maths into AI

GCSE

A level

2025 Changes to the AMSP

c25 local leads employed directly by MEI

Most of the Higher Level Problem Solving programme moved to MEI with external funding from XTX Markets

Some aspects of Core Maths support moved to MEI

Some aspects of EDI work moved to MEI

What has been lost?

Some key MEI staff

Some goodwill

A direct presence in university Mathematics departments

The Higher Level Maths Achievement Programme (HLMAP)

- Helping high achieving Key Stage 2 students from disadvantaged backgrounds to secure grades 7-9 in GCSE Mathematics
- Working with the NCETM and Maths Hubs
- Three elements
 - Teacher professional development
 - Student activities
 - Bespoke support
- c400 schools per academic year

HLMAP Teacher Professional Development

- GCSE main focus
- Subject knowledge
- Teaching challenging content with confidence
- How to inspire students

HLMAP Student Activities

- Demanding GCSE topics
- Problem solving skills
- In school consolidation and revision
- Study days
- AQA L2 Certificate in Further Mathematics

HLMAP Bespoke Support

- High-potential students from low participation backgrounds
 - Progression into higher education
 - Social value list
- Resources
- Opportunities

The Girls' Progression Programme (GPP)

- Encourage past 16 take-up of Core Mathematics, A level Mathematics and AS/A level Further Mathematics
- Years 7 – 11
- 200 schools over 2 years
- Four elements
 - Online community of teachers
 - Online professional development
 - A face-to-face year 10 event
 - Bespoke support

The Maths into AI Programme

- Equipping students with the high-level maths skills essential for AI-related careers and the future economy
- Post 16 students
- Two elements
 - Student courses
 - Teacher professional development

Maths into AI Students' Courses

- Develop students' knowledge of how maths and statistics underpin machine learning and AI
- Supporting future study and careers
- Developing practical skills in modelling with real data.
- Two courses
 - For A level mathematics students
 - For students studying other L3 subjects with mathematical content (including Core Maths)
- 11 weekly one-hour online lessons for 1 term
- Assessment by an examination and a practical task.

Maths into AI Teacher Professional Development

- Developing teachers' understanding of how maths and statistics underpin machine learning and AI.
- Enabling enrichment of learning using technology-based tools and techniques
- Two courses
 - Bringing the Maths of Data Science and AI into the A level classroom
 - Bringing the Maths of Data Science and AI into the A level Computer Science classroom
- Blended version and online version

AMSP Teacher Professional Development (GCSE)

- Higher Tier GCSE Maths Conference
- Offering AQA Level 2 Further Mathematics
- Topics and Pedagogy for AQA Level 2 Further Mathematics
- Higher GCSE Topics Through Mathematical Thinking
- New and Aspiring Heads of Maths
- Supporting High Prior-Attaining Students from Disadvantaged Backgrounds
- Teaching with Desmos

AMSP Teacher Professional Development (Core)

- Core Maths Conference
- Getting Started with Core Maths
- Preparing to Teach Core Maths
- Core Maths Common Topics
- Developing Core Maths Pedagogy
- New to Teaching Core Maths

AMSP Teacher Professional Development (A level)

- Teaching A Level Mathematics
- Teaching Statistics 1
- Teaching Mechanics 1
- New to Teaching A Level Mathematics Summer School
- Key Stage 5 Coordinator Development
- AS Maths: Pure Beginners
- AS Maths: Pure Improvers
- A Level Maths: Pure (Year 2)
- AS and A Level Maths: Mechanics
- AS and A Level Maths: Statistics

The Higher Level Problem Solving Programme



Teacher Professional Development (AMSP)

- Next Steps online PD
 - 4-week twilight course
 - Mathematical enrichment and EPQs
 - Mathematics in social sciences
 - University admissions tests
 - Personal statements and applying for a maths-rich undergraduate degree
- Problem Solving Conference
 - Ideas for introducing mathematical problem-solving activities into the A level classroom

Setting out in Problem Solving

- Online course
- Introductory problem-solving skills
- Information about the variety of undergraduate maths and maths-rich degrees available
- 2500 Year 12 students in 2025/6
- Signposting of support organised by a variety of organisations

Problem Solving Matters

- Six partnership universities (shown below).
- Three in person study days
- 580 Year 12 student places – POLAR and TUNDRA selection
- A mentor assigned to each student who studies maths at the host university
- Follow up live lectures

The study days:

- Two in June/July, one in September
- University taster sessions
- Study focus lectures by tutors
- Workgroups with university student mentors

June '25 to Oct '25

576 face-to-face students

82 online



HLPS Live Online

TMUA live online courses – Year 13

- 7 live online weekly sessions with tutors
- Accompanying resources and support
- One in September and another in November each year

MAT 81, TMUA 244

STEP live online course – Year 13

- 10 online sessions
- Accompanying resources and support
- From February each year

109 current students

MEI run courses.

TMUA on demand course

Pilot in 2025/6 c1200 students

- Self-paced
- Free to all
- Interactive tasks and practice quizzes
- Adaptive feedback on your answers
- Hints and insights from TMUA experts
- Gamification

Hg Foundation A* in Mathematics & A* in Further Mathematics

Four universities

- Imperial College, London
- The University of Manchester
- The University of Bath
- The University of Warwick

SUMS magazine

Monthly online magazine with:

- Puzzles and problems
- Examples from maths careers
- What to do now
- Careers help

Integral HE

- A recap, review or refresh of A level and Further Mathematics for undergraduate students
 - Mathematics
 - Engineering Mathematics
- Integral HE for ITT students

To conclude...

MEI (and the AMSP in particular) has lost key links with university departments

- Rebuild links
 - Shared common interests and aspirations
- Support progression to maths-rich undergraduate degrees
- Provide a link between state schools and universities
- Support students in the transition to a maths rich degree
- Develop new partnerships with universities