

NANAMIC Annual Conference

Tuesday 27 June 2023 9.50am – 4.00pm

Free to members via ZOOM

Keynote Speaker:
Michael Anderson from the National STEM Centre

Building Bridges between STEM Subjects

At STEM Learning our aim is to provide a world-leading STEM education for all young people across the UK. In this session we'll explore collaborative approaches between science and maths teachers, dip into our vast resource archive and discover how our STEM Ambassadors programme is inspiring the next generation by showcasing real-world applications of their learning.

Secondary mathematics teacher Michael Anderson is a Professional Development lead and the ENTHUSE Partnership Education Lead at STEM Learning, based at the National STEM Learning Centre, in York.



See the following pages for planned workshops

The conference will include a short AGM with an update on progression towards a single association.

Please complete the booking form to save your place

<https://forms.gle/mtKLtRgTrUTuy5LM9>

Payments can be made using a credit/debit card through our website

[Payment by card](#)

Cost: Members FREE, Non-members £20 inclusive of membership fee

Please note: this is the **only** maths subject association conference particularly for teachers in the FE and Skills sector!

This worked for me

We will be looking at how we should teach and work with students resitting GCSE Maths during the first half term. These students are often fed-up at having to resit GCSE Maths. They have 'failed'. What can we do to motivate them to succeed?

Fiona Allan has taught Maths to all ages from 5 to 18, latterly in a college where she taught all levels from Numeracy and resit GCSE to A-level. Since leaving the classroom, she has been involved in many projects such as Improving Learning in Mathematics, Learning Maths in Context and the Maths Enhancement Programme which upskilled 2000 teachers to enable them to teach students resitting GCSE Maths.



Mastery Teaching in FE: the results of a randomised control trial

This presentation reports on the results of a large-scale randomised control trial, run by the University of Nottingham in the academic year 2021/22, which investigated approaches to improving student outcomes in mathematics for post-16 GCSE students. Three groups of teachers were involved: a 'business as usual' group, a partial intervention group and a full intervention group. The partial intervention group engaged in a professional development (PD) programme setting out an approach to Teaching for Mastery (TfM) bespoke to FE and had available seven lessons that exemplified how this approach could be implemented in classrooms. They were asked to teach five of these lessons in specific windows during the GCSE resit course. The full intervention group engaged in the same PD programme and taught the same lessons, but in addition engaged in a lesson study group that worked to understand teaching to the TfM model. Evaluation of the trial looked at impact in terms of exam outcomes and how teachers worked in the classroom in ways that attempt to align with the design of the interventions.

Marie Joubert was a teacher of mathematics and computing for twenty years. After completing her PhD in mathematics education, she moved into research and has worked on a wide range of research projects nationally and internationally. Her research interests include teaching and learning in mathematics and the professional development of teachers of mathematics. She has worked with teachers of GCSE resit students in a number of different contexts and was the principal researcher on the DfE-funded trial of Mastery Teaching in FE (this was part of the Centres for Excellence in Maths programme, managed by the Education and Training Foundation).



The Whole College Approach: evidence of impact and inspiration

The Whole College Approach (WCA) programme aims to guide FE colleges through an organisational change process leading to improvement in students' experiences of mathematics and outcomes. This approach has been used by 16 FE colleges over the last two years, with each college developing their own context-sensitive interventions. Case studies of these colleges illustrate a positive impact on students and staff from the WCA programme, in an environment where it is challenging to develop sustainable strategies for improvement. We will discuss selected cases, summarise what has been learned and reflect on research findings about the impact of the WCA programme. Details of the ongoing WCA programme and how to access this will also be provided.

Diane is a Senior Research Fellow at the Centre for Research in Mathematics Education, University of Nottingham. She previously worked in Further Education colleges in England for over 20 years, in various management and teaching roles, before commencing a full-time doctorate at the university and then progressing to her current role. Her recent research includes the Mathematics in FE Colleges project and work for the national Centres for Excellence in Mathematics programme, focusing on the Whole College Approach project and the Teaching for Mastery trials. She has researched and written about various aspects of post-16 mathematics but is particularly interested in how different teaching approaches, organisational strategies and leadership influence the student experience.



The three 'e's: Engaging and enriching activities for embedding fluency and understanding

Although many post-16 learners lack fluency recalling key facts and procedures, few resources 'hook' their attention by encouraging extended exploration and discovery. However, NRICH's huge selection of free, curriculum-linked interactivities has been shown to increase student engagement over sustained periods. In this session, Director of NRICH Dr Ems Lord will explore a selection of these interactivities and share insights into maximising their potential among learners for embedding key facts and procedures alongside building their mathematical confidence.

Dr Ems Lord was appointed Director of NRICH in 2015, the award-winning mathematics outreach collaboration between the Faculties of Mathematics and Education at the University of Cambridge. Ems is also a Research Fellow in the Sciences at Clare Hall College, University of Cambridge, and the current Chair of The Mathematical Association (having previously been President). Ems is a fellow of The Institute of Mathematics and its Applications and a Founding Fellow of the Chartered College of Teachers as well as being a regular contributor to the All-Party Parliamentary Group for the Teaching Profession and a member of the Joint Mathematical Council. Ems has taught mathematics across the key stages, from Early Years to A Level Further Mathematics, and has worked in a variety of settings including a hospital school. Her previous roles include supporting schools as a Leading Mathematics Teacher, local authority consultant and as a Chartered Mathematics Teacher. Prior to joining NRICH Ems led one of the largest Masters-level Mathematics Specialist Teacher (MaST) programmes and has taught mathematics education on both BEd and PGCE teacher programmes.



Platonic Activities

In this interactive workshop David will share a number of mathematics activities centred around the five Platonic solids. These will include model building, nets, geometry, classifying, combinatorics and Euler's Theorem to name a few. In addition, participants will be encouraged to share further ideas and activities.

After a career in Mathematics and Computing in FE, David Martin now works with the retired to engage and reengage them in mathematics.



Adults studying GCSE mathematics in FE colleges: perceptions, characteristics, and examination grades

This presentation is a summary of the provisional findings of a research project undertaken for a doctoral thesis. They are provisional because I am still writing up my thesis and have not yet been examined! The research examines the self-efficacy and anxiety levels self-declared by a group of 21 adults. These adults (19+) are retaking GCSE mathematics, often to obtain the qualification to enable an onward journey into university and alongside Access to HE courses. The motivation experienced by the learners is high, but so is the stress of engaging with mathematics after a break. This research seeks to establish whether self-efficacy and/or anxiety levels are related to final examination grades.

Jenny has taught mathematics in FE for almost 20 years. She has worked her way through a master's in education and is currently completing a doctorate with Sheffield Hallam University. Jenny's research interests include adult learners (19+) in maths classes, especially those whose first language is not English. www.esolmaths.co.uk



Teaching for Mastery in FE: the CfEM legacy

The Centres for Excellence in Mathematics (CfEM) programme ended in March 2023, but left a substantial legacy of resources and research evidence for the sector. This workshop will explore how the ideas of teaching for mastery were adapted and applied by CfEM to meet the needs of 16–19-year-olds re-sitting GCSEs and Functional Skills in colleges, and present research evidence in answer to the question 'what works in FE maths?'.

In particular, the workshop will showcase the exemplar schemes of work and lesson materials that were developed by teachers in CfEM colleges, which are now freely available for practitioners to download from the *CfEM Resources and Evidence Hub*.

The workshop is led by Steve Pardoe from the Education and Training Foundation, and formerly Head of the CfEM programme.



Using Manipulatives in the FE Classroom

The use of manipulatives is a fundamental part of a Concrete-Pictorial-Abstract approach. But it can be hard to know where to start with teenage students.

In this session, Rebecca will explore ways that manipulatives can become part of your regular classroom practice, in a way that FE students enjoy.

Rebecca began her teaching career in primary education, as a teacher and SENCo. She is an experienced FE teacher, having worked in colleges in London with resit students and adult learners. Rebecca has recently joined MEI as a Maths Education Support Specialist. She is particularly interested in giving resit learners space and time to explore mathematics, increasing their confidence and ultimately their enjoyment of the subject.

