NANAMIC Annual Conference

Wednesday 6 July 2022 9.50am – 4.00pm

Free to members via ZOOM

Keynote Speaker:
Dr Jennie Golding from University College London

The mathematics gender jigsaw in Further Education

What do we know about gendered participation and attainment in mathematics in Further Education? What classroom and college approaches support lively and meaning-making inclusion by gender? I will draw on my recent work on gender and mathematics 14-19 for the Joint Mathematical Council[1], to present some recent trends in FE, particularly in relation to GCSE Mathematics resits. I'll link those to the evidence around the characteristics of those students in terms of their 'baggage, beliefs and belonging', to suggest/affirm inclusive classroom, and college, approaches that are likely to support the range of learners.

[1]The summary and full 'Gender Jigsaw 14-19' reports can be found at https://www.jmc.org.uk/output/

Jennie taught the range of mathematics learners 5-18 for many years, in parallel with work in initial teacher education and with education policy. She is an Associate Professor at UCL IOE, where she researches the classroom enactment/impact of mathematics education policy, including with a focus on 'the forgotten third', and works closely with policy bodies such as DfE, Ofqual, Ofsted, ACME….; her professional profile can be found here. Jennie has a fundamental belief that the range of young people can learn to be confident and effective users of mathematics in appropriate ways.

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

NANAMIC Conference 2022

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!

Don't Say That! Don't Imply That! Do Say This!

Many students come to us with misconceptions firmly embedded and with rules that they have inferred from what has happened in the classroom. We will look at why such misunderstandings happen and how we can avoid or remedy them. We will also think about what we should be saying to our students.

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 worked on many projects including 'Raising maths attainment through enhanced pedagogy and communication'.

Developing Problem Solving Approaches for GCSE resit and beyond

Problem solvers take time to think about a problem; they make false starts and that is ok; they have confidence to know that there are other things they can try.
In this session we will look at some strategies that can help any learner, even the most reluctant, recognise that they can say something about a problem; they can build on their informal ideas; they can make progress. This takes time. It is not a quick fix and we shall talk about how to embed these approaches in a short course such as GCSE resit.

Sue Hough has worked with GCSE resit teachers and their students over many years on developing approaches which encourage learners to build from their natural informal ways of answering questions. Sue has designed classroom materials based on the Realistic Maths Education approach (www.rme.org.uk) where using context and informal models such as the ratio table can empower GCSE resit learners to see all the topics which involve proportional reasoning as the same; not different.

Good mathematicians can go backwards!

Working backwards is an important part of mathematical problem solving. In this session we will look at ideas and problems that encourage students to think about the relationships between processes and their inverses.
Here's the answer, what was the question can encourage good mathematical thinking, we will look at problems to do just that.

Colleen Young has been involved in education throughout her career, specialising in Mathematics and IT as a teacher in schools and Distance Learning colleges; she has also worked in training. Colleen also has examining experience and is a Member of the Chartered Institute of Educational Assessors. Colleen has a keen interest in ***how*** students learn and how technology can enhance the learning experience. She enjoys collaborating with fellow educators and has presented several sessions at various Maths conferences for teachers.

Colleen studied at Manchester University for her undergraduate degree in Mathematics and Management Science and at UCL's Institute of Education for her Masters Degree in Mathematical, Statistical and Computing Education.

Using Core Maths techniques to engage and motivate GCSE resit students

How can the approach to Core Maths engage, motivate and support learners in GCSE Resit Maths? Emma has presented workshops at previous NANAMIC Conferences which have been very well received. She has been working in her new role for almost one year.

Emma Bell is a Maths Education Support Specialist for MEI and has many years' experience in Further Educational colleges. Emma specialises in motivation; in ensuring that students have belief and confidence in their abilities.

Emma tweets as @El_Timbre

Ofsted update: maths in further education and skills

This session will focus on Ofsted's view of the key characteristics of high-quality education in relation to maths in further education and skills. We will consider curriculum intent, implementation and impact, along with wider aspects of a provider's culture and policies. Along the way, we will have the chance to address common misconceptions about Ofsted's approach, and there will be plenty of time for questions.

Becca Clare is an HMI and Ofsted's further education and skills Curriculum Adviser. Before joining Ofsted in 2017, she worked in further and higher education for thirty years, including in senior management and in teacher education. She has a doctorate in education from the University of Huddersfield.

What teaching for mastery looks like

The research arm of Centres for Excellence in Maths (CfEM) is working with Further Education (FE) colleges and sixth form colleges across the country to conduct randomised controlled trials of approaches to teaching for Mastery. These approaches aim to improve learner understanding of concepts underpinning the GCSE mathematics curriculum to improve outcomes on GCSE resit programmes.

Geoff Wake is Professor of Mathematics Education and convenor of the Centre for Research in Mathematics Education where he directs and contributes to a substantial portfolio of research. Prior to joining the Centre in 2011 he worked as Senior Research Fellow/Lecturer/Senior lecturer in Mathematics Education for approaching twenty years. This followed a career teaching in school and college for eleven years.

Marie graduated with a first-class degree in mathematics and fine art from Rhodes University in Grahamstown, South Africa. She completed a higher diploma in education at the University of Cape Town, and then taught in South Africa for two years before emigrating to the UK. She taught mathematics and computing in secondary schools in South Africa, London and Bristol for about twenty years before moving into the Higher Education sector.

Tacking the challenges of GCSE resits with a Whole College Approach

Diane will draw on evidence from the Whole College Approach (WCA) project to show how many of the current challenges with GCSE mathematics resit programmes in colleges can be addressed using a Whole College Approach (WCA) to mathematics. Using examples from her current work on WCA with the Centres for Excellence in Mathematics programme, she will explain how colleges have developed more effective shared ownership of mathematics across their organisations and successfully worked together to tackle difficult issues, such as student attendance and engagement with mathematics.

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 mainly 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.

Supporting your students to prepare more effectively for university-level maths and maths-related courses

As part of her role as Director of NRICH, Dr Ems Lord oversees the free advanced problem-solving STEP Support Programme which has already supported hundreds of students from schools and colleges nationwide to prepare more effectively for their forthcoming university-level mathematics courses. In this session, Ems will introduce you to the programme, exploring its key aims and approaches, and share some of her favourite resources for you to enjoy with your students.

Dr Ems Lord is the Director of NRICH and a research fellow at the University of Cambridge. Her research interests reflect her keen interest in widening participation in mathematics at both university level and in our wider society. Ems is an active member of the All-Party Parliamentary Group for the Teaching Profession and a recent President of The Mathematical Association.

Magic Spinners

In this workshop we will learn how to generate magic squares of odd order and utilise these to create sets of intransitive spinners in which for a collection of three spinners A, B and C, if in some way A is better than B, and B is better than C, then it is not true that A is better than C. This builds on student's interest in magic squares, encouraging them to create their own, and develops their understanding of intransitive objects, as is experienced by many students in the game of Scissors, Paper and Stone where Scissors beat Paper, Paper beats Stone, but Scissors does not beat Stone.

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

Using questions in the maths classroom – a discussion

How do you use questions in the maths classroom? Gail will lead discussion on this important subject.

Gail Lydon MA, CTeach has been involved in teaching, training and staff development for over 25 years. She has worked in all sectors: work-based learning; further education; secure estate; schools; and voluntary and community. Gail is presently involved in a number of research projects including: investigating the link between short term memory and low attainment in arithmetic; and supporting teachers in their own practitioner-led research projects.

STEM Ambassadors in maths: from skyscrapers to freight trains

From computer scientists to engineers, geologists to astrophysicists, STEM Ambassadors are STEM professionals who give their time and expertise to inspire the next generation.
STEM Ambassadors help young people to understand the real world applications of their learning; showcase different roles and pathways into industry, raising awareness of important skills in the workplace and help young people meet a wide range of inspiring role models, encouraging them to think about their future.

In this workshop we will explore how engagement with the STEM Ambassador programme can support the learning of mathematics by enriching the mathematics curriculum and highlighting the importance of mathematics in students' future careers. We will explore a range of mathematics activities and resources that STEM Ambassadors use when working with students.

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, York.

Centres for Excellence in Maths: What are we learning about Teaching for Mastery in FE?

The CfEM project has spent over three years researching how mastery and related approaches can be successfully applied to the context of FE maths – and particularly learners re-sitting GCSEs. CfEM colleges have engaged in multiple cycles of collaborative action research, in which teachers have adapted the key principles and approaches of mastery to the needs of their learners. This workshop will highlight some of the issues explored – including which approaches appear promising, in which contexts, and with what learners. We will draw particularly on the work of two colleges involved - Newham College and East Surrey College – and outline the opportunities for all FE and 6th Form colleges to become involved during the final year of the project.

The workshop is presented by Steve Pardoe, Head of CfEM, and Richard Kirtlan, Regional Maths Lead, along with two centre leads – Liz Hopker from Newham College and Elaine Gates from East Surrey College.