

## NAMA/AMET CPD Extravaganza

### **Those who can, teach teachers**

Friday 28<sup>th</sup> February- Saturday 1<sup>st</sup> March 2025

Foxborough Primary School Slough SL3 8TX

## Programme

### Friday 28<sup>th</sup> February

11:00 Registration

11:30 Welcome

11:45 **Jenni Ingram keynote – The little words matter**

12:45 *Lunch*

#### 13:45 **Workshop 1**

- Supporting children’s inhibitory control in mathematics learning: co-design of a research-based classroom intervention – Julia Bahnmüller and Stefanie Burke
- Using technology for developing mathematical behaviours - when, why and how - Pip Huyton
- Problem solving in ITE and CPD - Ashley Compton

#### 14:50 **Workshop 2**

- Learning through Observation - Gill Knight
- EAL and maths - Jo Skelton, Nathan Barker, Andy Parkinson
- Supporting struggling teachers - Fiona Curtis

15:45 *Break*

16:00 **Stef Sullivan keynote - Supporting beginning maths teachers to develop a 'way of being' that enables them to be inquiring, resilient professionals**

17:00 Close

*Optional evening meal organised at local restaurant (cost not included)*

## Saturday 1<sup>st</sup> March

09:00 Registration

09:25 Welcome

09:30 **Geoff Wake keynote - Behaviours for leading and participating in collaborative lesson research**

10:30 *Break*

10:45 **Workshop 3**

- Empowering Girls in STEM Through Collaborative Problem-Solving - Louise Hoskyns-Staples
- The MTC and teaching multiplication tables: teacher attitudes and practice. - Andy Tynemouth, Andy Parkinson, Alison Borthwick
- Interactions and classroom practice - Jenni Ingram, Lizzie Kimber, Jo Skelton

11:45 **Judy Hornigold keynote - Maths Mastery and Dyscalculia**

12:45 *Lunch*

13:30 **Mike Askew keynote – Centring on emotions**

14:30 Closing remarks

14:45 Close

## Frequently asked questions

### **Where do I park?**

There is plenty of free parking in the streets around the school. Please be aware that there is a nearby mosque so if you arrive during Friday prayers, it is likely to be busy. There is no parking on the school site on Friday however the school car park will be available on a first come, first served basis on the Saturday.

### **Where do I go when I arrive at the school?**

Please head to the school Reception (clearly signposted) where a member of the organising committee will meet you and take you to our meeting space.

### **What if I arrive after the event has started, or I can't get into the school site?**

The school Reception will help you, but if they are busy and so can't respond, please call either Ruth on 07484 661989 or Jane on 07854 235871

### **Which train station should I arrive at?**

Langley station (on the Elizabeth line) is one mile from the school.

## The little words matter- Jenni Ingram (keynote)

Developing as mathematics teacher educators and working alongside (future) mathematics teachers involves awareness of many subtle things that can change meanings and perspectives. Often these subtle things go unnoticed or are treated as unimportant, and yet many of them can significantly influence how we see things and act towards them. In our time together we will look at some examples drawn from my own research, from the research that has influenced my own ways of working as a mathematics teacher educator, as well as broader research in mathematics education, linguistics, psychology and sociology. Some of these examples will focus on mathematics, while others will focus on the learning and teaching of mathematics. I hope this session will provoke you to see mathematics, mathematics teachers and mathematics learners differently.

*Jenni Ingram is Professor of Mathematics Education at the University of Oxford. She has been a mathematics teacher educator for most of her career and her research focuses on communication and interaction in mathematics classrooms, among other things.*

## Workshop 1

### A: Supporting children's inhibitory control in mathematics learning: co-design of a research-based classroom intervention – Julia Bahn Müller and Stefanie Burke

This session will focus on a participatory research study involving a research team (researchers and advisers) working with fifteen teachers to co-develop strategies to support children's use of inhibitory control when choosing mathematical procedures. Teachers acted as researchers and participants. They contributed to study design, intervention strategies, and they collected child data. Our design highlights the efficacy of co-designed interventions and teacher professional development in changing classroom practices and it is this that we will focus on in the workshop.

*Dr. Julia Bahn Müller is a Senior Lecturer at Loughborough University. Her research explores how adults and children acquire and process numerical and mathematical information, as well as the underlying factors contributing to mathematics learning difficulties.*

*Stefanie Burke is a maths adviser for DES in Devon. She works with staff and learners in primary and early years schools, trainee teachers and early career teachers, action research projects, professional development programmes and designing and writing support materials.*

### B: Using technology for developing mathematical behaviours- when, why and how - Pip Huyton

PPT alone is becoming the 'go to' teaching tool for many teachers, with children just observing pre-determined animations. When, why and how can technology, Polypad, Desmos for example, be used to give children opportunities to enhance their learning and develop mathematical behaviours as emerging young mathematicians. What strategies can be shared with teachers for them to make a difference for children in their classrooms. This will be a hands-on workshop so bring a laptop and try some ideas for yourself. The focus examples will be taken from the KS2 and KS3 curriculum content.

*Pip has extensive experience in providing CPD and supporting school improvement in both the primary and secondary sectors. She is passionate about supporting and developing teachers to provide learning experiences that all children can access to develop their mathematical thinking and*

*reasoning. The appropriate use of physical manipulatives and digital technology have been a key element of her work; ensuring learners have the opportunity to build a sense of the mathematics and understanding of the structure through the use of dynamic visual models.*

## C: Problem solving in ITE and CPD- Ashley Compton

This is a practical workshop, looking at some problem solving activities and investigations that can be used with ITE students or CPD with teachers and TAs. We'll consider the social and emotional aspects, as well as the mathematical ones. If you have a favourite problem solving activity please bring it along to share.

*Ashley Compton teaches at Bishop Grosseteste University, mostly on the BA (Hons) Primary Education with QTS and primary PGCE courses. However, she has also taught on the MA courses for teachers, including the very popular MAST programme, as well as leading bespoke maths CPD for primary teachers and TAs. She was a local authority maths advisor during the introduction of the NNS.*

## Workshop 2

### A: Learning through Observation- Gill Knight

How can the observation of a more experienced other become a valuable, developmental learning opportunity for in-service teachers? What strategies can be put in place to ensure maximum teacher learning? Drawing on my own experience observing teaching in Shanghai and subsequently teaching demonstration lessons for others, I will first outline the strategies I have developed to make the most of a modelled lesson. There will then be the opportunity for others to share their own experiences and to discuss ideas for refining this process as a way of prompting teacher learning.

*Gill is a freelance primary maths consultant and Assistant Maths Hub Lead (primary) for the Mobius Maths Hub. She has supported primary teachers and schools to develop approaches to maths teaching and learning for the past nine years. The ideas in this session have developed from her MSc in Teacher Education from the University of Oxford, and will form part of her contribution to the forthcoming book written by alumni of the course, to be published by Bloomsbury.*

### B: Mediating between the two worlds of language and mathematics- Jo Skelton, Nathan Barker, Andy Parkinson

Multilingual learners of mathematics bring to their learning unique linguistic profiles, through which they develop their mathematical thinking and conceptual understanding. Supporting teachers to draw upon pupils' full linguistic repertoire requires an additive approach to embracing first and heritage languages, alongside the medium of instruction. In this workshop, we will explore the current research relating to working with pupils for whom English is an additional language and discuss the opportunities and challenges that this represents. We will share the findings of our 'Multilingual Learners of Mathematics' knowledge exchange project, undertaken with schools on the island of Jersey. This project focused on developing strategies and resources to promote linguistic diversity in primary and secondary schools and we will share examples of these, alongside comments from the pupils themselves. Through inviting others in the workshop to share their experiences of good practice in working with pupils with EAL, we hope to promote debate around this important topic.

*Jo Skelton is a senior lecturer in primary mathematics at Oxford Brookes University and works extensively with teachers in international school contexts. Her research focuses on supporting teachers to develop their practice in working with multilingual learners of mathematics.*

*Nathan Barker is the Lead Teacher of Secondary Maths, Jersey, The Channel Islands. Nathan has been teaching for over ten years in a variety of secondary schools in Cambridgeshire and Jersey. Alongside teaching, he has worked on published materials for students and teachers to enhance the learning and delivery of mathematics across a variety of contexts.*

*Andy Parkinson has been the maths adviser in the Education Department of the Government of Jersey for 8 years. He is a mathematics specialist with over 30 years' experience (across both primary and secondary sectors) as a teacher, adviser and consultant, in the UK and overseas. During this time he has been involved in various maths research projects, presenting at national conferences. He is member of the Joint MA/ATM Primary group and previously a Maths No Problem trainer and secondary NCETM PD lead. The author of Origami Dots and Multies Dice, Andy is passionate about promoting the creativity in mathematics and developing thinking.*

### C: Supporting struggling teachers- Fiona Curtis

In this workshop Fiona will present the short study she did with new trainee teachers about the value of video-recording their micro-teaching in the early days of the course. This will be a starting point for a discussion about how best to help training teachers, in which participants will be encouraged to share their own experiences and best practice.

*Fiona has worked on the University of Reading's secondary maths ITT programme for 10 years, and the study was undertaken as part of the University of Oxford's master's in Teacher Education.*

### Supporting beginning maths teachers to develop a 'way of being' that enables them to be inquiring, resilient professionals- Stef Sullivan (keynote)

This keynote will explore how ITE curricula, and approaches to working with beginning teachers, can be designed to develop maths teachers who can confidently teach in contemporary and future classrooms. It will suggest ways in which beginning teachers can be encouraged to have at their heart an inquiry stance, which enables them to rethink approaches to teaching and learning as contexts shift and change.

*For the last 32 years Stef has been involved in education, first as a teacher and then a teacher educator. She is Professor of Education and Deputy Head of the School of Education at the University of Nottingham, where she has been for over twenty years. Stef is Chair of the Universities Council for the Education of Teachers (UCET) and co-chair of the Russell Group Initial Teacher Education Network. Through these roles, Stef works closely with universities across the country and advises policymakers on issues related to teacher recruitment, retention and professional development.*

## Behaviours for leading and participating in collaborative lesson research – Geoff Wake (keynote)

In this presentation we will consider behaviours that we might value when participating in and/or leading collaborative lesson research. I will draw on our research project Mastering Maths to introduce the Japanese idea and deeply engrained phenomenon of hansei and how this supports classroom behaviours of both students and teachers. In our work we have produced, collaboratively working with teachers, a framework that provides a vision of what collaborative discussions might look like in relation to classroom didactics and pedagogies. This does not provide an answer, but rather a stimulus to having increasingly meaningful reflective and supportive conversations as we work to improve teaching and learning.

*Geoff is emeritus professor of mathematics education at the University of Nottingham, where his research currently focuses on the mathematically disadvantaged and collaborative lesson research. He is chair of trustees, and co-founder, of the charity Collaborative Lesson Research (CLR-UK). His research for approaching fifteen years has incorporated modified versions of lesson study, informed by his close connections with colleagues in Japan. Recent large scales trials he has conducted in England have provided evidence that it is lesson study that makes the difference in teacher professional learning.*

### Workshop 3

#### A: Empowering Girls in STEM Through Collaborative Problem-Solving- Louise Hoskyns-Staples

In this workshop, we'll explore how Collaborative Problem-Solving (CPS) can be used to support girls in building spatial awareness and confidence in mathematics. Drawing on a project where young girls collaboratively designed a LEGO town, we'll examine CPS tasks that work well in a maths classroom, helping pupils develop essential skills through meaningful, structured collaboration. Participants will engage in model CPS activities, reflecting on how these tasks can foster a more inclusive approach to maths learning and address gender disparity in STEM fields.

*Louise Hoskyns-Staples (FCCT) is an independent mathematics education consultant. She is an NCETM PD lead and is also an NCETM lead evaluator, research and innovation lead. Louise has completed an MSc Teacher Education (Mathematics, Oxon). She is an author and subject expert for Maths – No Problem! Louise is also the Assistant Maths Hub Lead SHaW and a consultant to the DfE.*

#### B: The MTC and teaching multiplication tables: teacher attitudes and practice.- Alison Borthwick, Andy Tynemouth, Andy Parkinson

Our research project in England and Jersey investigated pupils' understanding of multiplicative relationships and looked for evidence of the inclusion of the MTC having a positive impact on those pupils who take it in England compared to pupils in Jersey who do not. Both qualitative and quantitative data was collected, which included surveys of teacher and pupil attitudes. Early analysis shows that children from England did not perform better than children in Jersey. In this session we will share some of the general finding and then focus on what the project has revealed about teacher attitudes and practice and consider how this might have implications for teacher professional development.

*Alison Borthwick is a mathematics adviser, lecturer, researcher, qualified teacher, author and learner. Her career has spanned primary, secondary, HEI and advisory roles. She is chair of the primary ATM and MA group, a member of the primary contact group for ACME, and a member of the Early Childhood Mathematics Group. She is also a STEM ambassador and a governor and is passionate about making mathematics accessible, stimulating and enjoyable for all. Alison has written several books and articles, including her most recent publications: *The Trainer Toolkit* (2020) and *Reasons to Reason across Primary Maths and Science* (2018). She also writes for UK and international journals, and has presented papers around the world.*

*Andy Tynemouth is a maths adviser for DES in Devon. He works with staff and learners in primary and early years schools, leading action research projects and professional development programmes and designing and writing support materials. He previously worked as an Every Child Counts National Adviser and has a particular interest in diagnostic assessment.*

*Andy Parkinson has been the maths adviser in the Education Department of the Government of Jersey for 8 years. He is a mathematics specialist with over 30 years' experience (across both primary and secondary sectors) as a teacher, adviser and consultant, in the UK and overseas. During this time he has been involved in various maths research projects, presenting at national conferences. He is member of the Joint MA/ATM Primary group and previously a Maths No Problem trainer and secondary NCETM PD lead. The author of *Origami Dots* and *Multies Dice*, Andy is passionate about promoting the creativity in mathematics and developing thinking.*

### C: Analysing classroom interaction- Jenni Ingram, Lizzie Kimber, Jo Skelton

In this session we will be working with some video recordings of mathematics classroom interactions using an approach widely used by researchers focused on interactions. This approach involves analysing data from the different perspectives different people bring to the data, and embraces these differences. It also supports us in developing the discipline of separating out what we observe from how we interpret what we observe.

*Jenni Ingram is Professor of Mathematics Education at the University of Oxford. She has been a mathematics teacher educator for most of her career and her research focuses on communication and interaction in mathematics classrooms, among other things.*

*Lizzie has taught mathematics in schools and universities, including teaching undergraduate mathematics to prospective teachers. Her research focus is classroom language, particularly for functions and graphs. Lizzie currently combines researching classroom language, being a secondary mathematics PGCE tutor and working for NRICH, having previously worked on curriculum projects for the Nuffield Foundation, the London Mathematical Society and Underground Mathematics. Lizzie has been involved with mathematics outreach for over a decade and is keen to encourage wider participation in mathematics beyond 16.*

*Jo Skelton is a senior lecturer in primary mathematics at Oxford Brookes University and works extensively with teachers in international school contexts. Her research focuses on supporting teachers to develop their practice in working with multilingual learners of mathematics.*



## Maths Mastery and Dyscalculia – Judy Hornigold (keynote)

This keynote explores how the principles and approaches underpinning Maths mastery can support learners with difficulties in Maths.

*Judy is an educational consultant specialising in Maths and learners with dyscalculia and dyslexia and is the co-founder of the Dyscalculia Association and Everybody Counts Ltd. Her teaching career started in primary schools before she moved into teaching children with special needs. Judy delivers key notes, workshops and training in Dyslexia, Dyscalculia and Maths Mastery across the world, including New Zealand, Australia and Dubai. She has been involved in curriculum development for the past 10 years including the Maths – No Problem! series. Judy has many publications, including GCSE maths for neurodivergent learners (2022) and Can I tell you about dyscalculia? (2020).*

## Centring on emotions- Mike Askew (keynote)

An emphasis on basing teaching on cognitive science findings not only positions emotions as secondary to cognition but also continues to suggest that thinking and feeling largely function separately. Yet there is a body of psychology research showing how our affective states profoundly influence the processes of learning. In this talk Mike will look at research pointing to the influence of emotions, how individual emotions are intertwined with the community one is in, and the implications for our work as mathematics teacher educators.

*Mike Askew was, until recently, Distinguished Professor of Mathematics Education at the University of Witwatersrand, Johannesburg, before which he held Chair Professorships at Monash University, Melbourne, and King's College, University of London. Mike's research on how to improve mathematics education and his numerous publications largely focus on the central importance of reasoning and problem solving in teaching and learning mathematics. He believes all learners are capable of seeing themselves as mathematicians, given engaging, supportive yet challenging teaching.*