Monday 11 April - 09:00 - 10:30

A2 - Exploring Addition and subtraction using the rekenrek! **Amy How**

This hands-on workshop is a must see. You will be introduced to the most versatile, visual, concrete manipulative that will change the way you feel about using the Concrete, Pictorial, Abstract approach in KS1. I focus on how to teach the basics using a manipulative that allows children to build, practice and UNDERSTAND the foundations of numeracy including addition and subtraction. Teachers are amazed at the simplicity of the rekenrek. We all know the importance of using manipulatives to have children see and do mathematics, but often the issues are they are messy, time consuming, difficult to store and distribute, chaotic, and/ or distracting. This tool solves all of these issues!

Workshop (resources required)

EYFS ,Initial Teacher Education,Key Stage 1

Take away…Participants will leave confident to use the rekenrek in class the very next day!

A3 - Challenging problems: using UKMT materials in the classroom **- David Vaccaro**

Would you like to try some UKMT questions grouped by curriculum area and discuss how you could use them in your classroom to develop problem solving skills? In this session we plan to share ideas about how you could use some UKMT resources to help your students think about unfamiliar problems, get stuck, discuss approaches, develop resilience, and improve their approach to problem solving. As part of this interactive presentation, you will receive an overview of the main UKMT resources available, suggestions of how colleagues have used them already, and directions to where ready-to-use collections of materials can be accessed.

Workshop

Key Stage 3,Key Stage 4,Post-16,Teacher Professional Development

Take away…Provide teachers with ready to use resources and practical ideas for their inclusion in lessons or maths clubs. Provide a forum for attendees to discuss their ideas and experiences.

A4 - On Not Being Fazed by Phase Diagrams – **John Mason**

Phase diagrams (plotting two covarying quantities against each other but not including time or distance) can challenge mental imagery and the reading of graphs. Participants will be given multiple opportunities to interpret and to sketch their own phase diagrams given graphs of two quantities varying with time or distance.

Workshop

Key Stage 3, Key Stage 4, Post-16, Teacher Professional Development, University

Take away ...Facility in and experience with interpreting graphs, and familiarity with phase diagrams

A5 - Learning mathematics with origami **Sue Pope and Tung Ken Lam**

Origami is an accessible starting point for exploring a wide range of mathematics with learners of all ages.

Workshop

Initial Teacher Education,Key Stage 2,Key Stage 3,Key Stage 4,Teacher Professional Development

Take away…Ideas of how to exploit origami in mathematics education

A6 - Teaching and Learning Proof **Colleen Young**

From the beginnings of reasoning mathematically at KS3 to the fluency with notation and language required at A Level, students must follow lines of enquiry, conjecture relationships and generalisations and develop arguments, justification and proofs. This session examines how we can help our students from KS3 to KS5 develop confidence in writing succinct arguments and proofs using accurate language and notation. The session will include a look at a selection of resources asking how can we use each resource to help develop such skills.

Talk

Key Stage 3,Key Stage 4,Post-16

Take away…How we can develop skills required for Proof from an early age.

A8 - ATM 100% coursework GCSE: teaching, assessing, moderating, learning. **Anne Watson and Mike Ollerton**

In this session I shall describe my experiences of working within an innovative ATM project from 1988 to 1994, warts and all. Teacher assessment,with shared moderation between schools, was a deeply influential and educational professional development experience. We had to examine what is meant by learning and doing mathematics and how our teaching influenced all learners' capacity to learn. Superficial current arguments about 'direct instruction' versus 'inquiry' come nowhere near the debates we had to have.

Discussion Group

Key Stage 3,Key Stage 4,Teacher Professional Development

Take away…Thoughts about teacher assessment of extended mathematical work

Monday 11 April - 14:00 - 15:30

B1 – MultipliXing **Dietmar Küchemann**

In this session we will look at tasks that fit the broad heading of multiplicative reasoning. Following my two blogs on algebra, which ATM has published in book form, I have produced a blog on multiplicative reasoning, which I hope might also become a book by the time of the conference. The tasks are aimed primarily at students in Key Stages 3 and 4, though the blog itself is written for the maths education community in the hope that it might help us think about ways in which we can help students make better sense of this rich conceptual field.

Discussion Group ,Talk

Initial Teacher Education,Key Stage 3,Key Stage 4,Teacher Professional Development

Take away…To have thought about ways to make sense of the conceptual field of multiplicative reasoning

B2 - ATM/MA Primary Group--Connecting research with practice **Helen Thouless**

Research is always complex, often contradictory and the findings may be nuanced. It is tempting to simplify these findings to provide a straightforward message. This does a disservice to both researchers and practitioners (Gilmore et al., 2021). This session will examine a selection of research articles used in the Ofsted Review to consider both valid and invalid implications for practice.

Discussion Group

Initial Teacher Education,Key Stage 1,Key Stage 2,Teacher Professional Development,University

Take away…A more nuanced understanding of the use of research in practice

B3 - Institute for Mathematics Pedagogy taster session **Corinne Angier & Special guests from IMP**

In this session we will work in small groups on a maths task and engage in a structured reflection afterwards. This will demonstrate how we work at IMP.

Workshop

Initial Teacher Education,Teacher Professional Development

Take away…An understanding of a typical IMP activity

B4 - Make-It Maths **David Sharp**

Come and make fantastic pop-up polygons, flexagons and puzzles in this creative and active session. You'll go away with lots of ideas for classroom use that can bring maths to life. No prior skills are needed, just a willingness to have a go. A similar session to this at BCME 9 was described as my favourite session of the conference by resourceaholic.com.

Workshop

EYFS ,Initial Teacher Education,Key Stage 1,Key Stage 2,Key Stage 3,Key Stage 4,Post-16,Teacher Professional Development

Take away…Pop-up polygons, flexagons and puzzles.

B5 - Getting Textbooks Right **Ed Southall**

An analysis of existing textbooks for the teaching of mathematics to help identify good practise. We will discuss the associated risks of using online resources, individual worksheets and stand-alone tasks in contrast to the structured sequencing present in some well designed mathematics texts. We will compare effective and less effective strategies for teaching with textbook support, and investigate the troubled reputation of textbook use in England.

Talk

Key Stage 2,Key Stage 3,Key Stage 4

Take away…An appreciation for good task design and sequencing

B6 - Utilizing Mathematical Children's Literature: a preservice teacher's experience. **Shauna McGill**

The session will explore a range of mathematical children's literature used to teach a variety of maths concepts from key stage one to key stage two. The session will present the findings of an All Ireland cross border qualitative project that PGCE and BEd programmes preservice teachers experienced.

Discussion Group

Initial Teacher Education,Key Stage 1,Key Stage 2

Take away…Guiding principles for the selection and implementation of children's literature when teaching various maths concepts in the primary classroom.

B7 - Talking positively **Vicky Wheelhouse**

That mathematics matters has always been true but does everyone see it this way? In our modern society, surely the importance of learning mathematics has become so ingrained that attitudes have changed to reflect this. Have they? This session considers learners' attitudes to mathematics in the classroom today and asks 'What has changed?' and 'Where do we go from here?'

Discussion Group ,Talk

Key Stage 2,Key Stage 3,Key Stage 4,Teacher Professional Development

Take away…A greater understanding of why what we say matters regarding learners' attitudes and how we can shape their views on maths.

B8 - Different Problem, Same Answer! **John Burke**

A number of challenging problems will be presented whereby all pupils will have the same problem but with different parameters to that of their neighbour. So, no copying. To make things easier for the teacher, all worksheets will have the same answer. Pupils are then invited to work out how this was achieved. That is, they are asked to prove the general result. Hopefully, many will want to do this voluntarily. There are over 80 resources aimed at Year 7 to Year 13 classes. Participants will be asked to work on the problems, so bring a pencil, ruler, compasses …

Workshop

Initial Teacher Education,Key Stage 3,Key Stage 4,Post-16,Teacher Professional Development

Take away…The use of invariants and a connection to proof.

B9 - Maths Marmalade **Andrew Jeffrey & Rob Eastaway**

A brand-new live talk from the presenters of the surprisingly-not-that-bad 'Puzzling Maths' podcast. Featuring a series of short-chunks of fascinating and enjoyable maths, Maths Marmalade is a chance to sit back and let Rob and Andrew remind you just how amusing, amazing and inspiring mathematics can be. If you've been to one of these before, you'll know that you're in for a good time. (There is a high probability that absolutely nothing you see during this session will be remotely useful in the classroom. And that's fine.)

Talk

EYFS ,Initial Teacher Education,Key Stage 1,Key Stage 2,Key Stage 3,Key Stage 4,Post-16,Teacher Professional Development,University

Take away…A sense of joy.

Monday 11 April - 16:00 - 17:30

C1 - #GLTBookClub - Running a Pedagogical Book Club: Linking research and literature to everyday classroom practice **Rhiannon Rainbow & Dave Tushingham**

This workshop will look at how a book club can support staff in accessing and interpreting the latest pedagogical research and literature through organic discussions with authors. We will model how we support participants' reflection through sharing a maths specific text to be enjoyed in the company of the author.

Discussion Group ,Talk

EYFS ,Initial Teacher Education,Key Stage 1,Key Stage 2,Key Stage 3,Key Stage 4,Post-16,Teacher Professional Development,University

Take away…A way to easily engage with rich, high quality literature to improve their pedagogy and network with others.

C2 - Teaching mathematics through problem solving **Jonathan Robinson**

Practical strategies for teaching 11 - 16 mathematics through problem solving. Includes practical advice on whole class questioning, scaffolding problems and how to turn a boring question into an engaging and challenging one.

Demonstration ,Discussion Group ,Talk ,Workshop,Workshop (resources required)

Key Stage 3,Key Stage 4

Take away…Participants will be more able to embed problem solving into any of their mathematics lessons.

C3 - More Maths Puzzles and Games **Bob Vertes**

For those familiar with Bob's book, and for those not, (see ATM bookstand) some more activities as starters or lesson enders, to be played in pairs, small groups or sometimes with whole class.

Workshop

Initial Teacher Education,Key Stage 2,Key Stage 3,Key Stage 4,Post-16,Teacher Professional Development

Take away…Things to try at home or in classroom

C4 - Making Fractions and Decimals **Jenni Back Sue Gifford Rose Griffiths**

We will present an interactive hands on workshop based on the resources we have been creating in connection with our Nuffield funded project exploring ways of using practical activities to support children's understanding of fractions and decimals. We will share some classroom ready activities and explain their rationale with reference to related research.

Workshop (resources required)

EYFS ,Initial Teacher Education,Key Stage 1,Key Stage 2,Teacher Professional Development

Take away…Some activities to use in the classroom and a deeper understanding of fractions and decimals.

Monday 11 April - 16:00 - 17:30

C5 - Mathematical Mentoring: tasks when working with student teachers **Louise Price Jo Skelton Jenni Ingram Anne Watson**

The session builds on an ongoing workgroup investigating the complex role of the mentor working with student teachers. It will explore tasks that have been used to encourage student teachers to focus on both the 'big ideas' within mathematics and the related decisions teachers make when using them in context. Using freely available resources for mathematics teachers, we will look at ways that resources and activities around these resources can be adapted and extended to be used by mentors working with student teachers across primary and secondary phases. Delegates will have the opportunity to share their own experiences too.

Workshop

Initial Teacher Education,Teacher Professional Development,University

Take away…Ideas for mentors working with student teachers in maths.

C6 - Writing for Mathematics Teaching **Tony Cotton**

A session aimed at supporting participants who might be interested in writing for Mathematics Teaching. the session will be lead by Tony Cotton, the MT editor.

Workshop

EYFS ,Initial Teacher Education,Key Stage 1,Key Stage 2,Key Stage 3,Key Stage 4,Post-16,Teacher Professional Development,University

Take away…Skills and confidemnce to submit an article for MT

C7 - FE Maths Challenge **Martin Newton**

FE Maths Challenge is a maths competition for post 16 GCSE resit students and functional maths students. These students really appreciate being involved with a maths competition, it's something that they have rarely experienced. During this session, you will have a look at some of the competition resources, and see how the FE Maths Challenge has helped boost confidence and motivation amongst FE Maths students.

Workshop

Post-16

Take away…How competition can help boost confidence and engagement with FE Maths students

Monday 11 April - 16:00 - 17:30

C8 - Addressing Social Injustice in the Maths Classroom **Graeme Austin, Pete Wright**

A hands-on workshop where you will do some Maths and share your experiences of tackling social injustice in your classroom. Walk away with fresh ideas about how you can improve the outcomes of female, BAME and socio-economically disadvantaged students, as well as students from other groups that tend to underperform in mathematics. As a spur to further action, we shall examine recent initiatives such as the TMSJ Network (www.mathsocialjustice.org), which offers support to teachers of mathematics across all age groups.

Workshop

Key Stage 3,Key Stage 4,Post-16

Take away…You will leave with resources and ideas to help address the social justice challenges in your classroom.

C9 - Codebreaking and cryptography **Charlotte Webb**

Crack codes and decipher messages in this interactive codebreaking workshop with Charlotte Webb from The Open University School of Mathematics and Statistics. This event will also see the launch of our new web-based gaming app,: Code Break.

Workshop

Key Stage 3,Key Stage 4

Take away…An overview of simple ciphers. A range of codebreaking activities to use with secondary learners. A free web app to use yourself or with learners.

Tuesday 12 April - 09:00 - 10:30

D2 - Working on quadratic equations **Jenni Ingram Fay Baldry**

In this session we will look at a range of ways of working on and working with quadratic equations using videos of lessons from 4 countries as a starting point. We will explore representations and images, contexts and applications, and connections across and within methods and approaches.

Workshop

Key Stage 3,Key Stage 4

Take away…Choices and tasks for working with quadratic equations taken from examples of teaching from around the world.

D3 - Growing Patterns **Helen Thoulesss Alison Borthwick Sue Gifford**

In this session, we will explore some activities that can be used to introduce children in the early years and KS1 to growing patterns. These types of patterns support children's understanding of hierarchical inclusion and expand their definition of pattern. Growing patterns provide a range of contexts for developing reasoning, justification, problem solving and generalising with young children. These activities are also suitable for mixed-attainment classes, as they create opportunities for children with a range of skills and understanding to participate.

Workshop

EYFS ,Key Stage 1

Take away…Experience of a range of activities that could be used to introduce growing patterns to young children.

D4 - Rods, Turtles and Functional Programs **Ian Benson and Neil MacDonald**

Conceptual mathematics and functional programming have a reputation for being difficult to learn and teach. In this interactive workshop we will demonstrate that this need not be the case. We will build on the Cuisenaire staircase and Worldturtle robot to explore key computational concepts such as function, algebraic data type, modular arithmetic, cryptomorphism, functors and monads. Participants are invited to bring laptops with preinstalled ghci and follow along exercises from github in Haskell (see https://github.com/aneilmac/worldturtle-haskell)

Workshop

Initial Teacher Education,Key Stage 4,Post-16,Teacher Professional Development,University

Take away…An appreciation of how conceptual mathematics and functional programming can help learners experience the algebraic structure of number systems

D5 - Fractions: A focus on numerators **Dave Hewitt**

So often with fraction work, there is a focus on the denominator. I will offer some activities which turn attention onto the numerator instead, and lets the numerator take the lead with the denominator following behind.

Workshop

Key Stage 2,Key Stage 3,Key Stage 4

Take away…The participants take away whatever they take away! That is not for me to decide.

D6 - Starting with the product: a more productive approach to the teaching and learning of multiplication and division **Gill Knight Maggie Steel**

What if there's a better way to teach multiplication and division than the tried and tested methods we've used for years? Does the current emphasis on grouping and sharing models of division create more problems than solutions? Could a product-based approach simplify teaching and learning in this area of the primary curriculum whilst simultaneously improving conceptual understanding and retention of multiplication bonds? This practical, hands on session will address the challenges of the current approach and explore an innovative solution to developing the conceptual understanding of multiplication and division which underpins fluency.

Workshop

Key Stage 1,Key Stage 2,Teacher Professional Development

Take away…New thinking about approaches to developing conceptual understanding of multiplication and division; practical strategies to use with pupils

D8 - Exploring with triangles **Tandi Clausen-May**

This is a practical, hands-on mathematical workshop, using triangles. We will use ATM MATs, Polydron, scrap paper, and scissors and sticky tape, to explore some of the fascinating 3-D shapes (’deltahedra’) that can be made with simple equilateral triangles. Lots of things for us to discover ourselves, and for our students to explore back in the classroom.

Workshop (resources required)

Initial Teacher Education,Key Stage 1,Key Stage 2,Key Stage 3,Key Stage 4,Post-16,Teacher Professional Development

Take away…Participants will make their own interesting discoveries, and will take away lots of ideas to use in the classroom.

Tuesday 12 April - 09:00 - 10:30 and 14:00 - 15:30

D9 & F9 - Learning Mathematics through Drama **Tony Cotton and Helen Toft**

The session will explore how techniques from drama education can be used to support the learning and teaching of mathematics. (DOUBLE SESSION)

Workshop

EYFS ,Initial Teacher Education,Key Stage 1,Key Stage 2,Key Stage 3,Key Stage 4,Post-16,Teacher Professional Development,University

Take away…Skills from drama that can support their mathematics teaching

Tuesday 12 April - 11:00 - 12:30

E1 - What have we learned about addressing maths anxiety, developing mathematical resilience and safeguarding mathematical well-being? **Sue Johnston-Wilder**

Research into maths anxiety is prolific but explicit evidence about what works to address it is relatively sparse. Amongst members of ATM there is great wisdom, often implicit, about keeping learners safely engaged and progressing with mathematical thinking. In this discussion, I would like to start work towards an ATM publication which links the fundamental tenets of ATM, and the well-being and resilience of learners of mathematics.

Discussion Group

Initial Teacher Education,Key Stage 2,Key Stage 3,Key Stage 4,Post-16,Teacher Professional Development,University

Take away…Greater explicit awareness of what is known and commitment to join in articulating it.

E2 - If it's tricky, draw a picky! Using carefully chosen representations to explore relationships and solve problems **Marc North**

Many teachers use representations to show students how to organise and solve problems. Less common is the use of representations to investigate and explore mathematical relationships and to compare different methods. This hands-on session will draw on principles from the Realistic Mathematics Education tradition to investigate how carefully and deliberately chosen representations can be used as an effective tool for both solving problems and developing a deeper understanding of the mathematical relationships and structure at play in the problems. Activities will relevant to both Primary and Secondary teachers.

Workshop

Key Stage 2,Key Stage 3,Key Stage 4,Teacher Professional Development

Take away…A deeper understanding of the value of representations for exploring mathematical structures

E3 - Reasoning, justifying and proving with NRICH: Primary **Liz Woodham Charlie Gilderdale**

Join members of the NRICH team who will introduce you to a selection of favourite Primary problems intended to challenge learners to develop convincing arguments. Come prepared to conjecture, generalise and share your mathematical thinking with fellow delegates.

Workshop

Initial Teacher Education,Key Stage 1,Key Stage 2,Teacher Professional Development

Take away…A better understanding of how to find suitable resources from the NRICH website that will challenge students to work and think mathematically, with a particular focus on reasoning and proof.

Tuesday 12 April - 11:00 - 12:30

E4 - 20 things to do with a computer: lessons from Papert **Miles Berry**

The session begins by revisiting some of Papert's writing, including '20 Things to do with a Computer' and Mindstorms. We'll look at how many of the insights from his work remain relevant today, particularly in relation to learning through making, the role of programming in thinking mathematically and independent learning. We explore some of the lessons to learn from early experiences in Logo programming and bring this up to date with an exploration of how turtle graphics can be used for learning geometry, for digital creativity and for the foundations of computer science, concluding with some thoughts on how this can best be incorporated into the upper primary or lower secondary curriculum.

Workshop

Initial Teacher Education,Key Stage 2,Key Stage 3,Teacher Professional Development

Take away…Practical ideas for using turtle graphics to connect the maths and computing curricula.

E6 - Secondary school algebra: a focus upon validation **Tony Edgar**

I have developed an interest in this topic over the last ten years providing maths intervention for secondary school pupils. ; I am a retired NHS Trust Medical Director/ former lecturer in Medical Statistics at Manchester and Leicester Universities. I will provide examples of a) problems for which the arrival of a solution requires an approach which includes the discipline of validating an initial, ostensibly highly plausible answer towards ensuring its correction, and b) on line maths website algebraic factorisation which fails to stand up to rigorous scrutiny and contributes to students' misunderstandings around this topic area. I would include confirmatory acknowledgement from a leading maths website and a leading author/Professor in the field.

Discussion Group ,Talk

Key Stage 3,Key Stage 4,Teacher Professional Development

Take away…An increased awareness of the value of validating algebraic calculations in the GCSE curriculum

E8 - A 'traditional' ATM workshop with lots of 'progressive' problems to solve **Mike Ollerton**

There will be a collection of problem-solving type tasks to work on; some of which will be relatively new (to me) and others might be new to participants.I intend to offer tasks which can be extended or simplified, with the target age range across KS2 to KS4. This session begins when the first delegate arrives. Any notes about how I intend the session to run will be distributed as and when folk arrive. Various manipulatives will be available for our use.

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Key Stage 2,Key Stage 3,Key Stage 4,Teacher Professional Development

Take away…To enjoy working on mathematics at your own 'pace' either on one's own or with others.

Tuesday 12 April - 11:00 - 12:30

E9 - Back to the future with geoboards **Heather Davis**

We will work on some tasks involving geoboards from both ATM and other publications such as Brian Bolt's books and The Hodder KS3 Extension books. These will span 60 years from the sixties to the present day. We will reflect on the value of using a familiar resource in different ways and what works, and doesn't work in this context, including creating and extending tasks.

Workshop

Key Stage 3,Key Stage 4

Take away…Ideas and the confidence to use them in the classroom.

Tuesday 12 April - 11:00 - 12:30 & 14:00 - 15:30

EF5 - Applying Max-Min Reasoning **John Mason**

Participants will bed invited to engage in a sequence of tasks which exploit reasoning about maxima and minima to obtain results about arrays and about divisibility (DOUBLE SESSION)

Workshop

Key Stage 2,Key Stage 3,Key Stage 4,Post-16,Teacher Professional Development,University

Take away…Appreciation of reasoning with max and min; connections between max & min and divisibility

Tuesday 12 April - 14:00 - 15:30

F1 - Grid Algebra - new version and free! **Dave Hewitt**

Grid Algebra is a freely available web-based software which offers an innovative and dynamic introduction to algebra. This new version offers a way of thinking about operations on numbers and letters as movements across a grid. It is designed for students to gain fluency working with formal notation and develop a sense of equivalent expressions, inverse operations and solving linear equations through movement and imagery. The session will introduce the software and the thinking behind its design as well as work from students using the software. Bring a laptop with you to explore it yourself.

Demonstration ,Talk ,Workshop

Initial Teacher Education,Key Stage 2,Key Stage 3,Key Stage 4,Teacher Professional Development

Take away…That is up to the people who attend!

F2 - Heritage and history in Ri Mathematics Masterclasses **Sam Durbin Ben Dornan**

The Royal Institution (Ri) charity has a long history of science communication and scientific exploration. In fact, this year we celebrate not just the 200th anniversary of Michael Faraday's very first electric motor that was developed in the Ri building, but also the 40th anniversary of our Mathematics Masterclasses programme. Join us to explore our heritage and have a go at some historical Masterclass activities that have inspired us over the years and which you can use in class to inspire your own students. www.rigb.org @Ri_Science

Workshop

Key Stage 2,Key Stage 3,Key Stage 4,Post-16

Take away…Enrichment mathematical activities to use in classrooms that are fun and highlight some interesting historical connections

F3 - What's the point of problem solving in the Primary School? **Janine Blinko, Jeffrey Goodwin**

This is a practical session, during which delegates will enjoy solving some problems. We will then reflect on aspects of the problems including: What mathematical thinking do they ignite? How could they be used in the classroom? What mathematical content and skills do learners experience when engaging in such problems? How will we know? Will their experiences of the problem be the same as ours? These discussions, and a consideration of what others say, will lead us to ponder the question in the title.

Workshop

Initial Teacher Education,Key Stage 1,Key Stage 2,Teacher Professional Development

Take away…A greater appreciation of why problem solving is important in the Primary School

Tuesday 12 April - 14:00 - 15:30

F4 - Mathematical and Computational Literacy **David Vaccaro and Ian Benson**

It is well known that most if not all of the procedures taught in school mathematics can be done using computers, which raises questions both about curriculum content, pedagogy and assessment. Reasoning about equivalence, for example, makes up over 30% of the examined content at A level. This session will reflect on the importance of prioritising Mathematical literacy to equip learners with the ability to analyse, reason and communicate ideas when solving problems. We shall also reflect on the key elements of conceptual understanding required for learners to use computational technology to their advantage, and to harness computer algebra systems in a way which enhances rather than undermines understanding.

Discussion Group

Initial Teacher Education,Key Stage 1,Key Stage 2,Key Stage 3,Key Stage 4,Post-16,Teacher Professional Development,University

Take away…The session will take forward a General Council initiative on computational thinking in mathematics (CTM), and explore the potential of a CTM literate programming challenge for schools. https://www.atm.org.uk/Computational-thinking-in-mathematics-.

F6 - Syncing up Mathematics Professional Development **Jo Sibley**

With many more teachers now able and willing to access professional development online, how do we ensure that we optimise the options available to us for delivery, to ensure that teachers' experience has deep and lasting effect without compromising their work-life balance? We look at the philosophy behind synchronous and asynchronous professional development and how what we've learned during the pandemic will open new opportunities in the future.

Discussion Group ,Talk

Key Stage 3,Key Stage 4,Post-16,Teacher Professional Development

Take away…A deeper understanding of the balancing act that is designing professional development for the modern teacher. A feeling of being challenged to think more deeply about the issues and about their reactions to that challenge.

F7 - Being a mathematician (Part Two): developing reasoning as habits of mind **Fin McLaughlin**

A summary of our Trust's ongoing project to develop reasoning 3-19 and promote mathematical habits of mind in teachers and learners, building on the work of the first year (which I presented at the virtual conference in 2021). The initial development work is expected to continue for 3-4 years with the hope of creating a sustainable long-term approach in the federation of 10 primaries and 10 secondaries.

Talk

EYFS ,Initial Teacher Education,Key Stage 1,Key Stage 2,Teacher Professional Development

Take away…Ideas to promote a systemic change of focus in (primary) mathematics teaching and learning; questions about commonly held views on mathematics in primary schools

Tuesday 12 April - 14:00 - 15:30

F8 - Reasoning, justifying and proving with NRICH: Secondary **Charlie Gilderdale Liz Woodham**

Join members of the NRICH team who will introduce you to a selection of favourite Secondary problems intended to challenge students to develop convincing arguments. Come prepared to conjecture, generalise and share your mathematical thinking with fellow delegates.

Workshop

Initial Teacher Education,Key Stage 3,Key Stage 4,Teacher Professional Development

Take away…A better understanding of how to find suitable resources from the NRICH website that will challenge students to work and think mathematically, with a particular focus on reasoning and proof.