

17 March 2022 – Morning Programme

8.00	Registration, Breakfast Pastries & Exhibition	
9.00	Models, Metaphors, Examples and Instruction <i>Mark McCourt, UK's leading specialist in teaching for mastery and author of "Teaching for Mastery"</i>	
9.50	Developing Representational Fluency <i>Jonathan Hall, Leeds City Academy and MathsBot.com</i>	Cross Phase
	Representations in Early Years <i>Sally Hall, 019 School Improvement Consultant, Leeds City Council</i>	EYFS
	Making sense with representations and manipulatives <i>Kate Henshall, Assistant Maths Hub Lead, West Yorkshire Maths Hub</i>	KS1
	Models, Metaphors, Examples and Instruction <i>Mark McCourt, UK's leading specialist in teaching for mastery and author of "Teaching for Mastery"</i>	KS3/4
	Horizon Knowledge - consistent use of representations to prepare for KS5 <i>Avril McLeer, Area Co-Ordinator, AMSP</i>	KS3/4/5
10.35	Refreshments & Exhibition	
11.00	The Visual In Mathematics Learning and Teaching <i>Dr Chris Pritchard, President of the Mathematical Association</i>	
11.50	Models, Metaphors, Examples and Instruction <i>Mark McCourt, UK's leading specialist in teaching for mastery and author of "Teaching for Mastery"</i>	KS1/2
	What the heck is a Rekenrek? <i>Amy How, Author, Presenter, Primary Maths Specialist, SLE and University Professor</i>	KS1/2
	Representing Fractions <i>Louise Hoskyns Staples, Independent Teacher Educator</i>	KS1/2
	Manipulatives in KS2: Helpful or a hindrance? <i>Sam Shutkever, Deputy Maths Hub Lead, West Yorkshire Maths Hub</i>	KS2
	How can multiple representations support a more inclusive mathematics classroom? <i>Dr Sally Bamber, Senior Lecturer at the University of Chester, and secretary for the Association of Mathematics Teacher Educators</i>	KS2/3/4
12.35	Lunch & Exhibition	

17 March 2022 – Afternoon Programme

1.45	What the heck is a Rekenrek? <i>Amy How, Author, Presenter, Primary Maths Specialist, SLE and University Professor</i>	KS1/2
	Representing Fractions <i>Louise Hoskyns Staples, Independent Teacher Educator</i>	KS1/2
	Grappling with Structure and Format <i>Professor Anne Watson Teacher Educator and Researcher, University of Oxford</i>	KS3/4/5
	Implementing a curriculum with impact <i>Lisa Wray, Prince Henry's Grammar School, LTS Team</i>	KS3/4
2.30	Refreshments & Prize Draw	
2.45	Black Heroes of Mathematics Dr Nira Chamberlain, President of the Institute of Mathematics and its Applications	
3.30	Conference Close	
3.30 – 4.30	Secondary Colleagues – LLP Review The LLP aims to support the delivery of an exceptional curriculum leading to high quality teaching and learning for all students and this session for secondary colleagues will build upon the work that they started in the autumn term about evaluation and implementation.	

KEYNOTES

KEYNOTE

MODELS, METAPHORS, EXAMPLES AND INSTRUCTION

Mark McCourt, UK's leading specialist in teaching for mastery and author of "Teaching for Mastery"

From Washburne to Carroll to Block to Ericsson, time and time again it has been shown that all pupils can learn well. So why is it still the case that so many pupils are written off as being not very good at maths?

In this session and the workshops to follow, we will look at a long-established approach to teaching mathematics that guarantees all pupils are successful and able to build upon their mathematical knowledge to a point of learning the whole of school level mathematics.

KEYNOTE

THE VISUAL IN MATHEMATICS LEARNING AND TEACHING

Dr Chris Pritchard, President of the Mathematical Association

To learn mathematics well we need a mixture of conceptual understanding, imagination, rigour and perseverance and to teach it well we need to do something that will help in all of these areas. Chris believes that diagrams can often be a great help here, whether held in the mind, drawn on paper or generated by technology. They can trigger lightbulb moments when connections are suddenly made, they often reveal the way forward in a problem and they free mathematical proofs from their innate dryness. Now you might think that a talk about the visual in mathematics would have a heavy psychological component, an explanation perhaps of what's going on in the brain when we see something, but Chris is coming at this from the point of view of a classroom teacher, and this talk is about images and ideas that he has been using in his lessons and in his writing.

KEYNOTE

BLACK HEROES OF MATHEMATICS

Dr Nira Chamberlain, President of the Institute of Mathematics and its Applications

The 2017 film, "Hidden Figures", is based on the true story of a group of black female mathematicians that served as the brains behind calculating the momentous launch of the NASA astronaut John Glenn into orbit. However, these mathematicians of colour are not the only 'Hidden Figures'.

Nira discusses other inspirational men and women who overcame obstacles to prove that 'mathematics is truly for everybody!'

WORKSHOPS



Empowering solutions,
inspiring learners

CROSS PHASE

DEVELOPING REPRESENTATIONAL FLUENCY

Jonathan Hall, Leeds City Academy and MathsBot.com

Johnny's (www.mathsbot.com) subject knowledge sessions are famous across the country (and possibly the world) and for good reason, his website gets over 50,000 hits a day from colleagues using his virtual representations in their classrooms and there is not much he doesn't know about teaching maths. This workshop will focus on how a single representation can be used from keystage 2 through to key stage 5, developing both coherence and connections for pupils. It will explore how to ensure that explanations are 'forward facing', how to develop representational fluency and challenge children to be able to reason multiplicatively.

EYFS

REPRESENTATIONS IN EARLY YEARS

*Sally Hall, 0-19 School Improvement Consultant,
Leeds City Council*

"Manipulatives and representations can be powerful tools for supporting young children to engage with mathematical ideas."

Improving Mathematics in the Early Years and Key Stage 1 Education Endowment Foundation.

This workshop will explore manipulatives, investigate how they can be used to secure mathematical understanding and promote reasoning in the early years. It will consider the link between manipulatives and the mathematical thinking they represent. We will explore how manipulatives encourage representational fluency and how children start to record pictorial and abstract representations through mark making and drawings. Practitioners will engage in a range of practical activities throughout the session that can be replicated back in the classroom.

KS1

MAKING SENSE WITH REPRESENTATIONS AND MANIPULATIVES

*Kate Henshall, Assistant Maths Hub Lead,
West Yorkshire Maths Hub*

Representations and manipulatives can help children to understand mathematical structures, build mental models and explain their thinking. This session will track the child's experience as they journey from concrete to a visual representation to the abstract notation. We will begin by framing the maths with a real-life context and look at how children can be supported to understand the underlying structure of the maths, make connections and generalise. We will also look at how the NCETM materials can support teachers with making this coherent journey.

KS1/2

MODELS, METAPHORS, EXAMPLES AND INSTRUCTION

*Mark McCourt, UK's leading specialist in teaching for mastery
and author of "Teaching for Mastery"*

Implementation of the ideas covered in the Keynote.

KS1/2

WHAT THE HECK IS A REKENREK?

Amy How - Author, Presenter, Primary Maths Specialist, SLE and University Professor

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 and KS2. Amy will focus on how to teach the basics using a manipulative that allows children to build, practice and UNDERSTAND the foundations of number sense. 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!

KS1/2

REPRESENTING FRACTIONS

Louise Hoskyns-Staples, Independent Teacher Educator

A workshop to explore the use of Lego and other tools to represent fractions in the primary classroom.

We will look at when Lego and other tools support conceptual development as well as the limitations that need to be considered.

KS2

MANIPULATIVES IN KS2: HELPFUL OR A HINDRANCE?

*Sam Shutkever, Deputy Maths Hub Lead,
West Yorkshire Maths Hub*

The use of manipulatives is commonplace in Primary classrooms across England. They are used to model mathematical concepts, link topics together and to support problem solving. In this session, the question will be asked: Are they always helpful?

There promises to be lots of discussion and activities you can try at school to help answer the question: why are we really using manipulatives?

KS2/3/4

HOW CAN MULTIPLE REPRESENTATIONS SUPPORT A MORE INCLUSIVE MATHEMATICS CLASSROOM?

Dr Sally Bamber, Senior Lecturer at the University of Chester, and secretary for the Association of Mathematics Teacher Educators

In this workshop we will look at ways that children and young people can experience mathematics so that they make connections and build on what they know. We will illustrate this through interrogating the array as a powerful multiplicative structure that supports learning throughout each stage of the school curriculum. Questioning how we can give learners experiences that terminate on mathematical ideas will allow us to imagine how we might untap the potential of the students that we teach. This will probably result in more questions than answers, which will hopefully stimulate further dialogue and interrogation in school.

KS3/4/5

HORIZON KNOWLEDGE - CONSISTENT USE OF REPRESENTATIONS TO PREPARE FOR KS5

Avril McLeer, Area Co-Ordinator, AMSP

'How to develop a deeper understanding of Mathematics with your students?'

During this workshop we will focus on pedagogy and progression. How can we consistently use representations to support students' understanding? We will look at Algebra and Geometry topics in detail, considering how they 'grow' from Ks3 to Ks5 and how our good practise and consistency can help students to make good progress.

KS3/4/5

GRAPPLING WITH STRUCTURE AND FORMAT

Professor Anne Watson - Teacher Educator and Researcher, University of Oxford

Participants will work with some curriculum-related tasks to raise questions about how learners develop and enrich their sense of the underlying structures of some mathematical concepts that are mainly treated as abstract at secondary school level. How do representations help? How does format influence learners' constructed understandings? Tasks will be informed by research from a range of substantial mathematics education sources.

KS3/4

MODELS, METAPHORS, EXAMPLES AND INSTRUCTION

Mark McCourt, UK's leading specialist in teaching for mastery and author of "Teaching for Mastery"

Implementation of the ideas covered in the Keynote.

KS3/4

IMPLEMENTING A CURRICULUM WITH IMPACT

Lisa Wray, Prince Henry's Grammar School, LTS Team

An opportunity to hear from our secondary Learning Teaching Specialist about how she leads her large department to be able to implement their curriculum with impact, this will be a session that focusses on sharing good practice and developing professional networks.