



Maths in Context Project - 2

PLT Maths Conference - 6

Shanghai Exchange -13

Two of our Primary Mastery Specialists, Karra Hartland and Helen Edwards, are currently in Shanghai learning more about the approach taken.

This is the latest phase of the Shanghai-England Research Project. Helen and Karra will be working closely with a pair of Shanghai teachers, who will be visiting here from 26th November until 10th December. They will be based at Sticklepath Community School, Barnstaple. Amongst a comprehensive programme during the visit there is an open invitation to visit the school to observe and discuss the teaching approach. Please see page 13, for more details.

Below is a diagram to show the five themes and associated work groups of the Jurassic Maths Hub for the current year. The work groups are a mix of local and national projects. I am delighted that we are now offering more support for secondary schools.

We recently selected four teachers (Plymouth, Torquay, Purbeck, and Twynham) to join the new Secondary Mastery Programme. We have also begun recruiting for more schools to join the Key Stage 3 Reasoning project and we have a new Dorset based Core Maths lead, **Jo Denton**, who will work closely with **Tom Rainbow** across the region.

As many of us grapple with the changes to GCSE and A-level, I would like to alert you to a new area of the NCETM website www.ncetm.org.uk/resources/49279, which aims to draw together the latest news and updates.

Also don't forget the FMSP and CMSP websites which have lots of helpful documents and analysis for planning new post-16 courses.

Please contact jurassicmaths@woodroffe.dorset.sch.uk and use the website www.jurassicmaths.com to find out more.





Education
Endowment
Foundation

Maths in Context Project

Background

The Maths in Context project was developed as the result of previous research that identified a need to help teenagers further understand money matters and financial contexts, and how gaining this knowledge may positively influence their maths attainment and engagement at GCSE level.

Studies indicate that in an average maths GCSE paper, around a quarter of questions contain a financial or 'real-life' mathematical context, such as calculating the cost of a gas or electricity bill or working out the interest on a bank account or credit card bill. However research shows that students generally perform poorly on these questions as they do not understand the financial context or vocabulary surrounding these questions, and so are unable to apply the correct maths to answer these particular questions.

With this in mind, The Education Endowment Foundation (EEF) has provided funding for the Maths in Context project, which will run for four years and test if teaching pupils 'real-world' maths skills can improve their GCSE results and overall engagement in maths lessons. The overarching aim of the project is to measure the impact in terms of mathematical attainment and financial capability of those students involved.



Project Overview

The project will look to recruit 130 secondary schools across England to take part, working solely with Year 10 students and teachers, with recruitment taking place in clusters across England. Following recruitment, the schools will be randomized and split to so that there are 65 schools in an 'active' group and 65 in a 'control' group. The 'control' group schools will receive £1,000 as a reflection of their involvement in the project, and once the project has finished will have access to the full set of lesson plans and resources used in the active group.

The 'active' schools will receive full support from a Young Enterprise education consultant and resources to implement with students for a full academic year. Those schools involved in the intervention will elect a lead teacher to attend an external training day, where specific training will be given on the aims and expectations of the project, as well as some training on the approaches to take when teaching maths in context.



A series of 12 specially designed lesson plans will be provided to teachers, which focus on a range of particular maths topics with a practical, financial focus, to be planned into the maths programme of study and delivered in class.

The lead teachers will be fully supported by a Young Enterprise specialist financial education consultant throughout the academic year in order to embed and subsequently deliver the lesson plans with students. Delivery in schools will begin in September 2017 and run for the full academic year, until the following July. Schools can find out more about the project by visiting the following page at:

www.pfeg.org/projects-funding/projects/maths-context

Or contacting alison.wakefield@y-e.org.uk



Multiplicative Reasoning Key Stage 2 and 3

Date: November 2016 OR February/March 2017
Venue: Twynham School, Christchurch, Dorset, BH23 1JF

Introduction

This is an opportunity to become more familiar with the NCETM's Multiplicative Reasoning Resources through the process of Lesson Study.

Facilitator(s)

Clare Hill, Director of Mathematics, Twynham Learning Alliance .

Bookings

Kate Hardy. kate.hardy@twynhamschool.com.

Overview

The Multiplicative Reasoning project was originally run on behalf of the DfE by the NCETM as a response to the phase 3 findings of the ICCAMS research. The MR content included developing a deeper understanding of multiplicative structures such as fractions, decimals, percentages and ratios. It has been suggested by research that many pupils (and adults) fail to move on from additive structures introduced in KS1 and KS2 and this can lead to many misconceptions and errors in subsequent mathematical study.

This course offers an opportunity to collaboratively plan, deliver and observe two lessons which are focused on students' understanding through the process of Lesson Study. It is ideally suited for teachers of Year 6 or 7.

Session Date	Session Times	Session Key Focus
04 Nov 2016 OR 23 Feb 2017	9.30am – 12.30pm	To understand the 5 'big ideas' in fractions and to explore in greater detail students' understanding of the part-whole view of fractions using the NCETM lesson 'Parts of a Shape' To prepare for day 2 using the NCETM lesson 'Fair Shares'
18 Nov 2016 OR 09 March 2017	9.30am – 12.30pm	To evaluate the Lesson Study process undertaken since day 1. To prepare for day 3 using the NCETM bar model lesson.
24 Nov 2016 OR 17 March 2017	9.30am – 12.30pm	To examine a fraction lesson at Twynham through the principles of Lesson Study.

Objectives

- To become familiar with the 5 'big ideas' of fractions.
- To become familiar with two of the NCETM Multiplicative Reasoning lessons.
- To become familiar with the process of Lesson Study.

Outcomes

The two sessions will introduce teachers to the NCETM tasks which have been specifically developed to be used within the Lesson Study process. This process has been proven to deliver wider reaching impact with greater longevity.

Cost

There are limited spaces so please book early. The cost per delegate will be £150 for 3 x 1/2 day sessions. Schools are asked to send 2 delegates from each school. Working collaboratively with two teachers from the same school or multi academy trust will allow you to apply for a grant (of £1,200 per school) from the Jurassic Hub which will cover your school's supply costs plus your school's delegate fees. Middle schools may also benefit from sending KS2 and 3 teachers.

Refreshments and resources will be provided.

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**Advice on preparation and
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**Focus on polynomials, curve
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sequences**

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**Opportunity to work with
like-minded students**

- Tutor:** Anna Rayner, experienced teacher of A Level Maths and Further Maths
- Venue:** The King's School, Cadhay Lane, Ottery St Mary. EX11 1RA
- Dates:** 6 Saturday morning sessions from 10 am to 1 pm.
10 Dec 2016, 7 Jan 2017, 11 Feb, 18 Mar, 22 Apr, 20 May
- Cost:** £150
- Booking:** For further details and to book a place please email
annarayner2@gmail.com



Dorset Subject Leaders Meetings 2016/2017

Wednesday 22nd March - TBC

Friday 16th June - TBC

Venue: Kingston Maurward, Dorchester, DT2 8PY

Devon Subject Leaders Meetings 2016/2017

Thursday 23rd March - TBC

Tuesday 21st June - TBC *(Please note change of date from last months newsletter)*

Venue: TBC

Plymouth Subject Leaders Meetings 2016/2017

Friday 2nd December - 1pm Stoke Damerel CC

Thursday 2nd February - 1pm Eggbuckland CC

Tuesday 7th March - 1pm Notre Dame School

Wednesday 3rd May - 1pm Plymstock School

Tuesday 4th July - 1pm Devonport High School for Girls

For more information email Donna Roughton:

droughton@phsg.org



NCETM Secondary Professional Development Leads

National Centre
for Excellence in the
Teaching of Mathematics

Seven potential new NCETM Professional Development Leads have attended training provided by the Jurassic Mathematics Hub in the period from June to October. The training took place over two days in Exeter and Kingston Maurward being led by previously accredited PD Leads Heidi Whitney (Dorset CC) and Sue Madgwick (BabcockLDP).

Participants, having completed a 'gap' task, are now evaluating how well they meet the stringent criteria to be accredited as a NCETM Professional Development Lead.



Institute of
mathematics
& its applications

Poster Competition

In our new competition we want entrants to make an eye catching and informative poster that shows teenagers how maths is needed every day.

The closing date is 12 January and there will be an Android tablet awarded to the best poster in each age group.

Visit the competition page for more details and the entry form. www.mathscareers.org.uk/competition

Your poster needs to focus on one use of maths, rather than listing lots of different uses. Think about what will have more impact!

Choose one area of life which uses maths. There is a wide range of suggestions on the web page to help get you started.

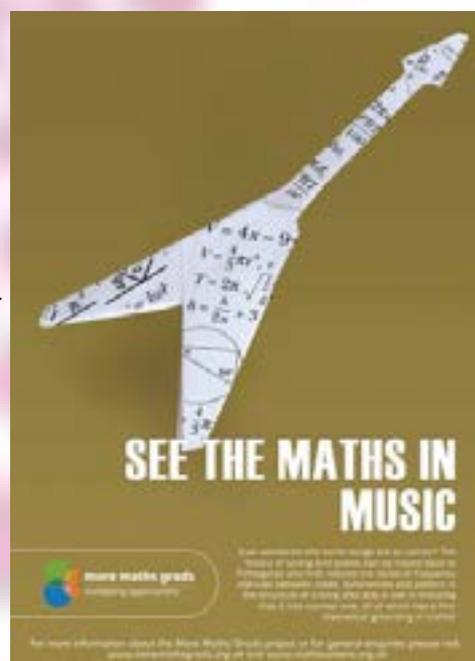
You could also research your own topic as this could make your poster stand out more to the judges.

Email: Joanna.Baldacci@ima.org.uk

Web: www.ima.org.uk

Mathscareers is now on Twitter

Follow us @Mathscareers.



PLT Maths Conference 2016

Johnny Ball, TV presenter and mathematician provided great inspiration and humour at the start of the 2016 PLT maths conference held at Plymouth High School for Girls. The theme for the day was problem solving within the mathematics curriculum.

Johnny's keynote to start the day was full of humour and thought provoking ideas. Johnny emphasised the importance of teaching some of the history of mathematical concepts as well as, how we can apply our knowledge to solve problems today. His in-depth knowledge of the great mathematicians from the past, from Euclid to Newton, Galileo to Florence Nightingale, brought some of the concepts we use everyday, to life.



Johnny demonstrated a clear passion for maths and in particular problem solving. His love of using all different elements of maths to help solve complex problems came through in both his keynote and in the sessions he ran during the day.

The conference also saw sessions run by Neil Ogden from OCR on the new GCSE style questions in both higher and foundation tiers, and Ted Graham from Plymouth University on problem solving.

Neil's session focussed on the GCSE content and how some of the new topics might be assessed in the examinations. Staff who attended this session found it extremely useful with great resources to take back into their own schools.

Ted Graham's session focused on problem solving for its own sake.



More and more of the questions coming through via the mastery agenda and the new GCSE's and A'Levels are focusing on problem solving, not real life problems, but maths problems for their own sake.

Ted's talk aimed to address these new style questions and involved teachers working in teams on example problems.



The afternoon keynote speaker was Adam Townsend a PHD student from UCL. His talk on fluid dynamics, concentrating on the maths behind a chocolate fountain went down very well - I think it helped that there was a chocolate fountain, strawberries and marshmallows on hand to aid his demonstration!



Adam talked about what else we might be able put into a chocolate fountain. Ketchup? Mayonnaise?

His talk focussed on what effects a liquids ability to “flow” in a chocolate fountain. In great Family Fortunes style he asked for the top answers to what helps a liquid to flow? Temperature and viscosity were easily drawn out from the audience but the last one, shear was less easy to draw out. Adam explained to the audience what shear was using an imaginary ball between his two hands and moving them in alternating directions.....

He then got the audience to practise “shearing air”....



Adam also demonstrated the strength of liquids with the aid of a local teacher. A solution of cornflower and water was made and we could all see it was runny, yet when the solution was “punched” there was no splash at all, the solution was “solid”.



The day saw over 100 maths teachers from across the city take part and enjoy a day of thought provoking maths to take back to their own schools and use with their students. A big thank you goes to all the guest speakers: Johnny Ball, Ted Graham, Neil Ogden and Adam Townsend, alongside the team at Plymouth High School For Girls who hosted a great day.

Report by:
Donna Roughton
Head of Maths
Plymouth High School For Girls.

CPD OPPORTUNITIES:

**Autumn Term 2016
Conference and new
Moderation Package
to support
Subject Leaders**

<http://www.babcock-education.co.uk/idp/courses/bookings/and Industry>

**Courses / Meetings
available include:**

**Conference: Teaching for
Understanding: The Principles
of Mastery, 28 November**

**Supporting Teacher
Assesment**

**Improving maths
results at KS2**

**Making Sense of Mastery in
Mathematics at KS1**

**Developing Early Number
Sense**

**Maths Training for Teaching
Assistants**

**Developing and Assessing
Fluency and Reasoning
through games in KS1 and KS2**



Teaching for Understanding: The Principals of Mastery

Monday 28th November 2016 | Exeter | 09:00-15:45

**DON'T
MISS OUR
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Keynote Speakers

Charlie Stripp
Director at National Centre for Excellence in Teaching Mathematics

Ruth Trundle
Primary Maths Adviser, Babcock LDP

Rebecca Cosgrove
Literacy Adviser, Babcock LDP

Paul Brown
Science School Effectiveness Adviser, Babcock LDP

Mastery learning maintains that students must achieve a level of mastery in prerequisite knowledge before moving forward to learn subsequent information

Teaching for Understanding: The Principals of Mastery

Wednesday 28th November 2016

Exeter

09:00- 15:15

Overview

"Mastery" has become part of the educational landscape without general agreement on what it means and the implications for teaching and learning. At a national level funding has been made available to develop thinking around mastery in mathematics. The day will provide an opportunity to debate, discuss and reflect on the mastery teaching approach.

This conference will explore the key concepts and principles underpinning a mastery approach to teaching, within a broader context (including English and

Science) and consider the challenges and implications for schools.

Key Reasons to Attend

- Develop further knowledge and understanding of mastery and underpinning principles
- Hear from expert mathematics keynote speaker Charlie Stripp, Director of NCEM.
- Explore the idea of a mastery approach in mathematics and in a wider context and consider the implications for your school
- Reflect on your pedagogical approach and how it could be developed with greater attention to the principles of mastery

Who should attend?

Primary; Headteachers, Governors, Senior Leadership Team, Subject Leaders and Teachers

BOOK TODAY!

Book your place today via:

Web: www.babcock-education.co.uk/ldp/cpd

Call: 01392 287224

Email: conferences@babcockinternational.com

Twitter: @BabcockConf use the hashtag #BabcockMASTERY

Early Bird price: **£155+VAT**

Valid until 21st October 2016. Full conference cost is £205+VAT

Jo Issa contacted us to share the results of an academic study into Oxford University Press's Inspire Maths programme, and to let us know about some OUP media activity around mastery in mathematics.

The study, entitled Evaluation of the Impact and Implementation of Inspire Maths in English Year 1 Classrooms was conducted by researchers at the Oxford University Department of Education. It took the form of a randomised controlled trial, drawing on data from more than 550 Year 1 pupils across 12 schools in England during the 2015/16 academic year.

The research revealed that Year 1 pupils taught with Inspire Maths for two terms made significantly more progress than students using it for a shorter timescale. It also revealed that the programme could boost children's motivation and engagement, and can be used creatively and flexibly by teachers.

A summary of the research is now available on the OUP website.

We are delighted with these findings, which provide yet more evidence about the potential benefits of mastery approaches– and adds weight to the maths community's increasing focus on Mastery in recent years.

However, the research has also revealed that significant challenges remain in helping schools to deliver mastery in maths classrooms.

This includes tensions between the mastery approach of covering fewer concepts in depth, and the UK's broad year-on-year maths National Curriculum, as well as the need to bring school management teams on board with the new way of teaching across primary schools.

OUP will be highlighting these challenges as part of a media campaign around the issue.

**You can find out more on
the OUP website:
www.oup.com/education/mastery
and can join the conversation
online using the hashtag
#UKmastery.**



Click [here](#) for the full Oxford University Press Release



Next Meeting:

**Thursday 5th
January 2017**

4:15 – 5:45pm

Pooler High School,
Wimborne Rd,
Pooler BH15 2BW

**For more
information contact:**

Jo Sibley
josibley@furthermaths.org.uk
07477 778 533

**Don't miss future
meetings at Pooler:**

2nd February 2017
23rd March 2017
27th April 2017

Alternative venues:

- Sir John Colfox Academy, Bridport.
- Bridgwater & Taunton College, Bridgwater.

For dates see the FMSP SW CPD page.

Pooler Mathematics Teacher Network

Statistics in the 2017 Mathematics A level: Starting to teach hypothesis testing

At this meeting:

Jo Sibley (FMSP) will lead a session looking the new requirements for teaching statistics in the new A level Mathematics, with a particular focus on hypothesis testing.

This session is free thanks to funding from the FMSP. Light refreshments will be provided.

For more information please contact:

Jo Sibley
josibley@furthermaths.org.uk

To confirm attendance please complete this form:

<https://goo.gl/forms/rbDNq1ThhT33Z1lh1>

The Dorset and Somerset Mathematics Teacher Networks are part of an FMSP-funded project allowing teachers of mathematics to meet, collaborate and share professional development. We meet three to four times per year and the programme is a mixture of informal sessions and speaker-led training events. Future dates and content will be posted on the FMSP SW CPD page here:

www.furthermaths.org.uk/SW_CPD.

If you wish to request a particular topic for a network session or to offer to present at one of the meetings, please contact Jo.

Next Meeting:

**Tuesday 17th
January 2017**

4:15 – 5:45pm

Sir John Colfox Academy,
Ridgeway, Bridport
DT6 3DT

For more information contact:

Jo Sibley

josibley@furthermaths.org.uk

07477 778 533

Don't miss future meetings at Colfox:

28th February 2017

28th March 2017

16th May 2017

Alternative venues:

Poole High School, Poole.
Bridgwater & Taunton
College, Bridgwater.

For dates see the FMSP
SW CPD page.

Bridport Mathematics Teacher Network

Statistics in the 2017 Mathematics A level: Starting to teach hypothesis testing

At this meeting:

Jo Sibley (FMSP) will lead a session looking the new requirements for teaching statistics in the new A level Mathematics, with a particular focus on hypothesis testing.

This session is free thanks to funding from the FMSP. Light refreshments will be provided.

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josibley@furthermaths.org.uk

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If you wish to request a particular topic for a network session or to offer to present at one of the meetings, please contact Jo.

Professional development for September 2017

If you are in the South West, complete the expression of interest form at:

<https://goo.gl/forms/mSgTvREXFXvUkMBm2>

to let us know what local development you and your department require or see

www.furthermaths.org.uk/SW_CPD for existing plans.



furthermaths.org.uk

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- *Teaching maths with technology strand
- *Hands-on opening plenary Liz Meenan
- *Saturday Night Special: David Acheson and Ben Sparks
- *New A Level strand
- *Closing plenary: Rob Eastaway

Shanghai Exchange

The Jurassic hub is pleased to be welcoming two teachers from Shanghai for two weeks during November and December. The exchange is part of a long-term project, run within the Maths Hubs programme, to help teachers in English schools introduce mastery approaches to teaching maths in their schools. The teachers will be hosted at Sticklepath Community School, Barnstaple. As part of the exchange, the Shanghai teachers will be providing teachers across the hub with the opportunity to observe a lesson and participate in a discussion afterwards. There will be a KS1 lesson on 7th December and a KS2 lesson on 8th December; these are morning lessons with arrival from 9:15 for a 9:45 start, finishing at approx. 11.30.

There will be 60 places available each day on a first come first served basis, please email Mrs Caroline Lambert, Jurassic Maths Administrator, at jurassicmaths@woodroffe.dorset.sch.uk to book a place.



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