

Everyone counts

Essex Year of

NUMBERS

Essex Year of

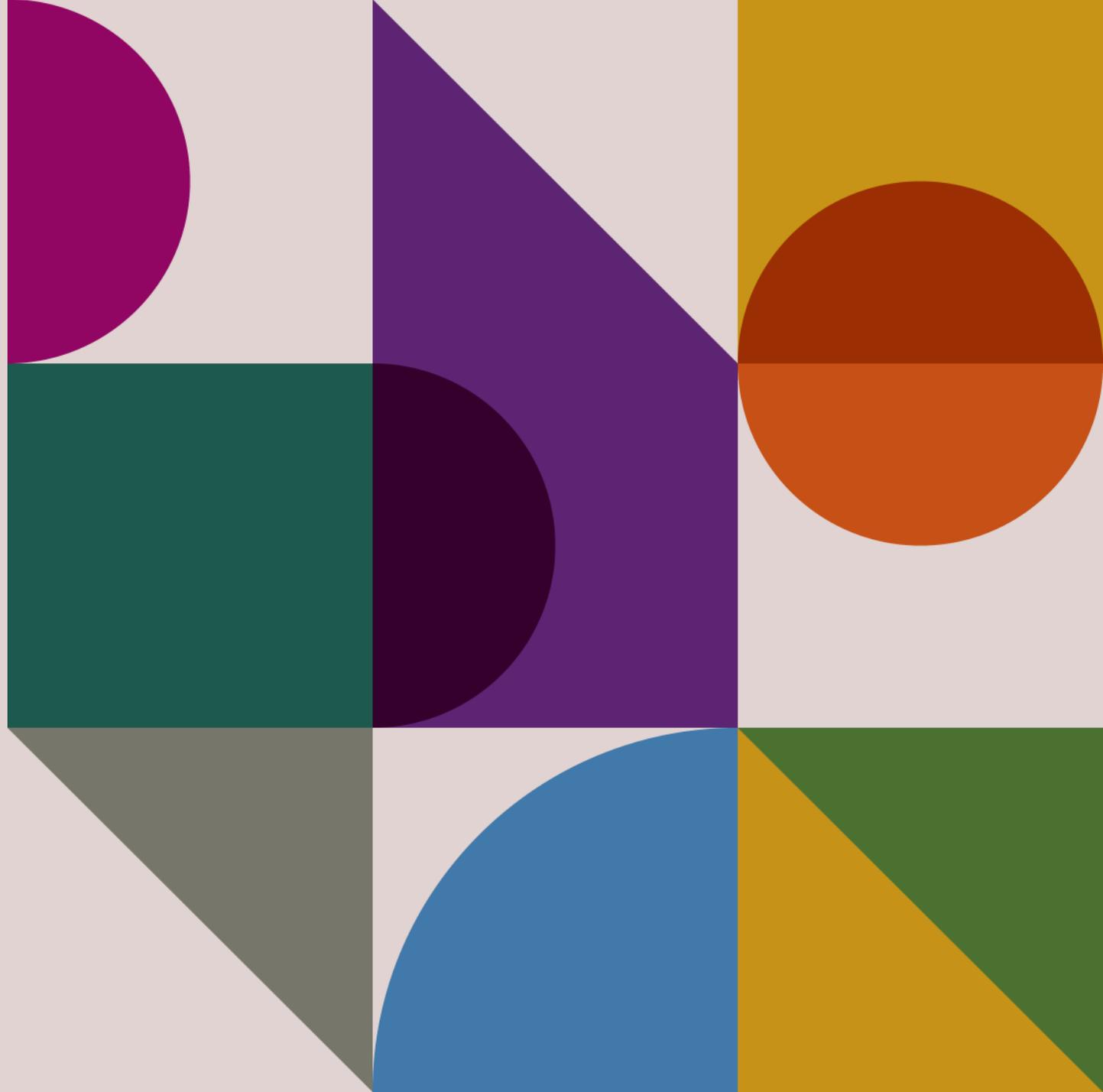


Everyone counts

ASHE – June 2023

Natalie Banthorpe – Primary Lead

Natalie Holgate - Secondary Lead



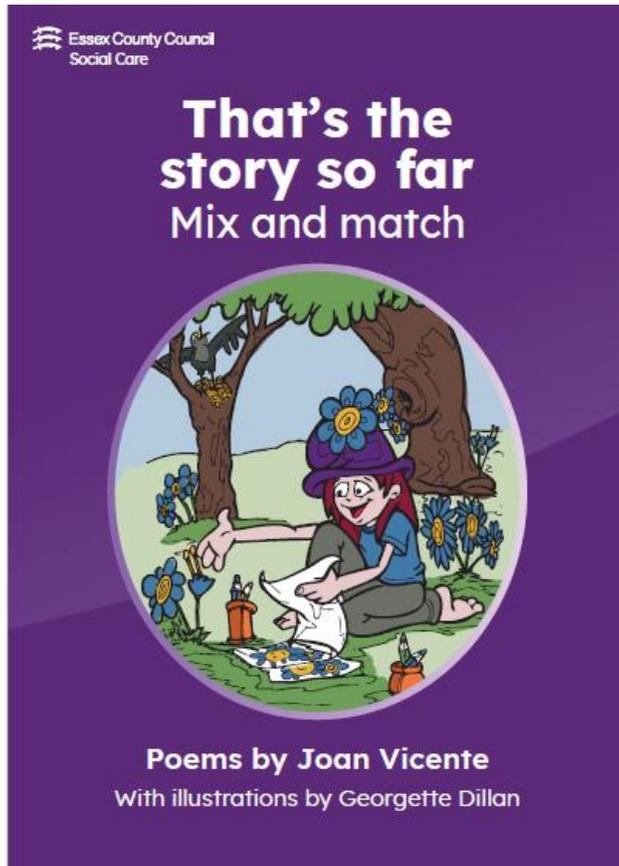
Essex Year of Reading – Successes

Multiple cross council initiatives delivered including:

- Library card for every child (150K cards delivered)
- Large range of author visits including Michael Rosen (1000 children at MR event)
- Parent ambassadors in conjunction with ACL (2 Ambassadors, 60 volunteers, 600 parents onto courses etc),
- Dementia/memory cafes alongside library children's events
- Literacy corner in every library (74 libraries)
- Year of Reading app including stories, teaching materials and signposts to other resources
- Intergenerational poetry publication
- Keeping it REAL/Phonological awareness in Early Years



Not just one book....



Essex Year of Reading – Teacher CPD Impact

Extensive programme of teacher CPD:

Reading fluency – 4 trainers trained, Year 1, 96 schools trained so far impacting approx. 600 pupils and will be ongoing (2 more cohorts of teachers will be trained by close of YoR)

- KS2 – average comprehension age increase was 2 years and 2 months, average fluency age increase was 1 year 2 months
- KS3 – average comprehension age increase was 1 year and 1 month, average fluency age increase was 10 months



Legacy and
looking
forward



Why a Year of Numbers?



The problem

- The KS2 and KS4 grade gap for disadvantaged children in Essex is wider than the national average.¹
 - In Early Years, Essex is marginally better than the national average – in 2019 the Essex gap was 4.5 months compared with 4.6 months as the national average
 - For KS2, the Essex gap shows children finishing 10.1 months behind their non-disadvantaged peers. This is 0.8 months wider than the national average of 9.3 months
 - The KS4 gap in Essex stood at 19.8 months, compared with the national average of 18.1 months
- Data for 2019 shows that of the 36% of pupils do not achieve grade four or higher in Maths and English (see comment). Within this, 58% of disadvantaged pupils did not achieve this compared to 30% of non-disadvantaged pupils.
- **All the research shows that low adult numeracy increases vulnerability to debt, unemployment, fraud, even poor health and the poor outcomes continue on and on.**²
- Low adult numeracy is estimated to cost as much as **25 billion pounds in lost earnings** for everybody across the across the country, every year.²



* 1 EPI Report

*2 Sam Simms, National Numeracy

2019 data is newest available, slide will be updated when new data published.

The Research Shows...

- Children who enter school with high levels of numeracy skills tend to maintain this advantage*.
- Early numeracy and mathematics achievement across development, predicts future financial success, the ability to make good decisions regarding oneself, and generally overall life success*.
- Early numeracy is more complex than it appears simply because it involves many skills and engagement with parents and Early Years colleagues is critical*.
- Parents being positive about mathematics has the biggest impact of pupils' successes *2
- A lot of educators lack confidence with maths, so we need to pay much more attention to supporting them to boost their own competence and skills.*3
- Confidence is the key to improving skills *3

*University of Loughborough, *2 Charlie Stripp from (MEI/NCETM) *3 Sam Sims, (National Numeracy)



to Make The Nation Enj

MATHS APPEAL

Proving Maths is for Everyone

Subscri NOW!

FT Weekend

The man who took on Facebook

Bobby Seagull The numbers man

Could you be a maths millionaire?

Essex Year of NUMBERS

BOBBY SEAGULL

UNIVERSITY CHALLENGE STAR AND BBC MATHS GURU

THE LIFE-CHANGING MAGIC OF NUMBERS

'Truly mind blowing' Daily Mail

THE LIFE-CHANGING MAGIC OF NUMBERS

How maths shapes everyday life

BOBBY SEAGULL



Anneliese Dodds MP, Nicky Morgan MP, Bobby Seagull, Sammy Wilson MP



WANTED
CELEBRITY FUGITIVES STILL AT LARGE



BOBBY SEAGULL



SAFFRON BARKER

Have you seen these celebrity fugitives? If so, please call 0207 483 6728 or email spottedceleb22@shine.tv

A reward may be offered for information leading to a capture!

Please note: BOBBY & SAFFRON are voluntarily "on the run" as part of a Channel 4 television series.

They are NOT missing and have NOT committed a crime. Please do not attempt to approach or apprehend them.

@Bobby_Seagull





What's already planned?

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Inspiring a love of numeracy
Essex Year of Numbers will help children, young people and adults to improve their numeracy levels and build maths confidence.





Maths Populism

- Speakers
- Events
- Trails



Numeracy and Maths Skills

- Teachers
- TAs
- All Sectors



Parents

- Multiply
- ACL
- Parent Ambassadors



Numeracy, Maths and Industry

- Employers
- Green industries
- Financial services

What's already happening?

- Seconded teachers and CPD
 - Number stacks
 - EY working group
 - Multiply
 - Libraries
 - Country parks
 - Inter-generational activities
 - Virtual school
 - App Stuff
-
- Educational Psychologists
 - Maths Hubs
 - Microsoft (Minecraft +)
 - MOD (RAF – Lego)
 - HSBC
 - LCEPs
 - Colchester Mercury outreach
 - Essex Music Service
 - Local ideas?

Primary & Early Years

 Essex County Council

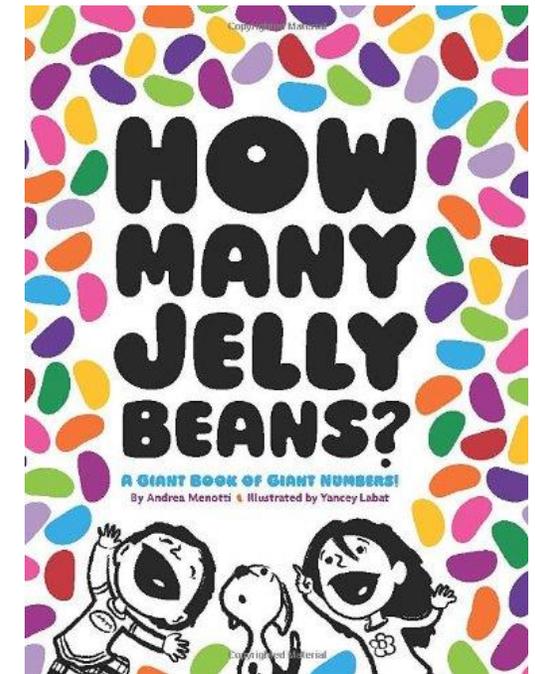
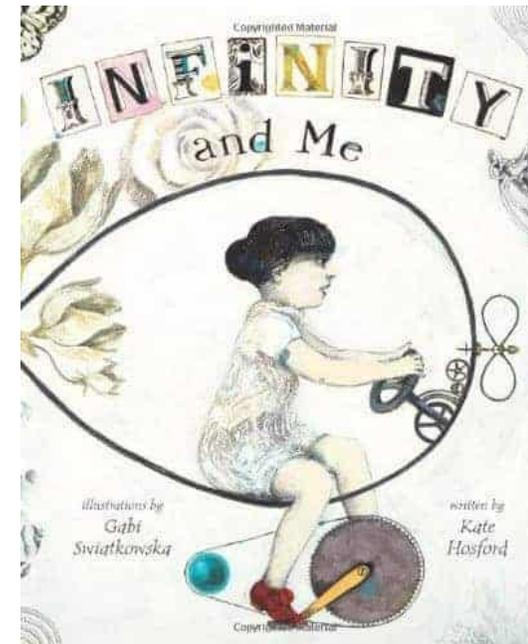
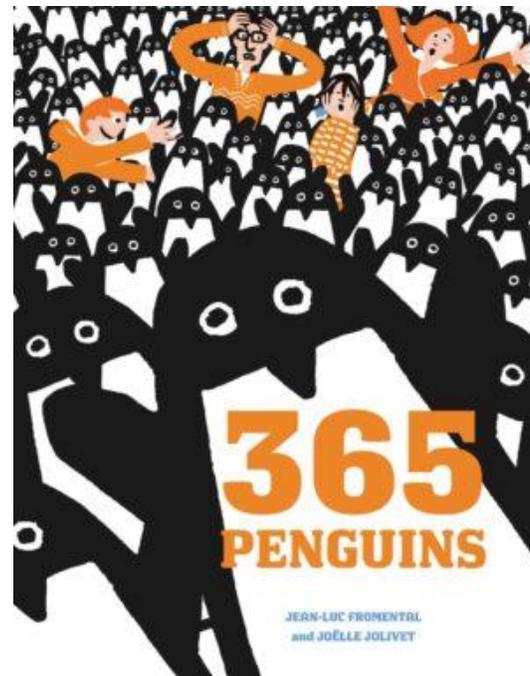
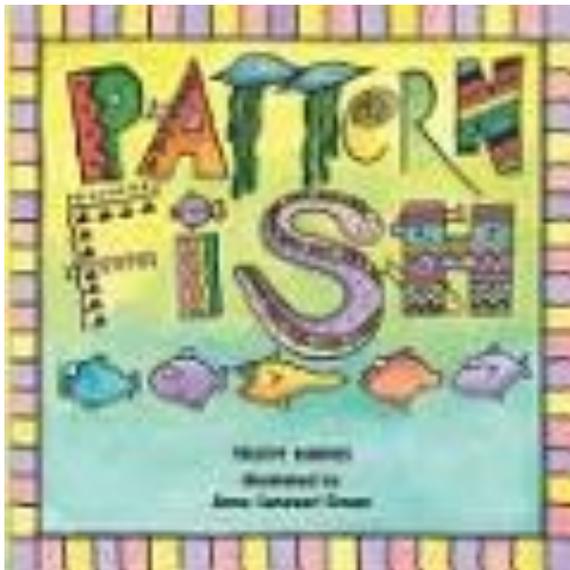
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Maths in picture books - This is to support our youngest children and their parents with beginning their Maths journey.



Maths Vocabulary development for Early Years children.

The programme



- **Is designed to be delivered 20 minutes a day for at least 12 weeks**
- Needs to be delivered consistently by a trained adult
- Requires a senior member of staff to attend training, assist with student selection for the programme (assessing students using the baselining grids we provide), and be available to the delivering TA on a regular basis and to

Essex Year of

Assistant EP visits.



- One day of training for two members of staff (one must be the TA intending to deliver the intervention and the other the senior member of teaching staff who will be supporting them)
- Provide Q+A sessions once a week following training
- Provide two support visits, one 'in person' support visit and one 'virtual' support visit by an Assistant Educational Psychologist
- Provide all materials needed to deliver the EPS MI
- Provide extension sheets where applicable
- Provide a designated Assistant EP will be available via email and phone to support you as you get set up

Number Stacks - intervention

100 secondary schools funded to support pupils who have not made age related progress at the end of KS1.

This intervention will support KS3 pupils.

<https://www.numberstacks.co.uk/>



Number Stacks Key Skills

Number and Place Value

12	Read and write 3-digit numbers in numerals, recognising the place value of each digit	Y3
13	Find 10 or 100 more or less than a given number	Y3
14	Read and write 4-digit numbers in numerals, recognising the place value of each digit	Y3
15	Round any number to the nearest 10, 100 or 1000	Y4
16	Read and write numbers to at least 1 million	Y5
17	Compare and order numbers up to 1 million	Y5
18	Round any number to a given degree of accuracy	Y6

13	Add numbers mentally, including: a three-digit number and 1s, 10s or 100s	Y3
14	Subtract numbers mentally, including: a three-digit number and 1s, 10s or 100s	Y3
15	Add numbers with 3 or more digits using a formal written method	Y3
16	Subtract numbers with 3 or more digits using a formal written method	Y3

5	Calculate mentally 2-digit times 1-digit numbers	Y3
6	Divide numbers going beyond 12 times the number using the tables that they know	Y3
7	Multiply two-digit and three-digit numbers by a one-digit number using formal written layout	Y4
8	Use known multiplication facts to calculate division with remainders	Y4
9	Identify multiples and factors of a number, and use the vocabulary of common factors and prime numbers	Y5
10	Multiply numbers of up to 4 digits by a two-digit number using a formal written method	Y5
11	Divide numbers of up to 4 digits by a one-digit number using a formal method	Y5
12	Divide numbers of up to 4 digits by a two-digit number using a formal method	Y6

Number Stacks Key Skills

3	Find and write fractions of amounts including unit and non-unit fractions with small denominators	Y3
4	Add and subtract fractions with the same denominator	Y4
5	Recognise and find equivalent fractions	Y4
6	Recognise mixed numbers and improper fractions and convert from one to the other	Y5
7	Use common factors to compare and order fractions	Y5
8	Add and subtract fractions with denominators that are multiples of the same number	Y5
9	Use common factors to simplify fractions	Y6
10	Multiply a proper fraction by a whole number	Y6
11	Multiply pairs of proper fractions	Y6
12	Divide fractions including fractions by whole numbers, whole numbers by fractions and pairs of fractions.	Y6

1	Recognise that decimals come from splitting ones into smaller parts and count up or down in tenths	Y3
2	Add numbers with one decimal place	Y3
3	Subtract numbers with one decimal place	Y3
4	Round decimals with one decimal place to the nearest whole number.	Y4
5	Recognise and count up or down in hundredths	Y4
6	Add numbers with two decimal places	Y4
7	Subtract numbers with two decimal places	Y4
8	Recognise the decimal equivalents of $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$	Y4
9	Multiply and divide whole numbers and decimals by 10, 100 and 1000	Y5
10	Recognise the % symbol and know the equivalence between common fractions, decimals and percentages	Y5
11	Find percentages of amounts	Y6

Secondary & Further Education

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Financial Literacy

- Finance programme in conjunction with HSBC
 - Certificates awarded for each section completed
 - Free to schools
 - Schools can choose to complete as many of the sections as they wish.
 - Linked to KS3/4/5 curriculum or taught as a stand-alone topic.
 - Designed to be taught by non-specialists
- 1) Difference between money and income
 - 2) Tax
 - 3) Components of payslips
 - 4) Simple wage calculations
 - 5) Tools used to transfer money PayPal, mobile apps
 - 6) Insurance
 - 7) Budget
 - 8) Financial planning:
 - 9) Overspending
 - 10) Savings
 - 11) Borrowing money
 - 12) Credit rating, checking affordability
 - 13) Hidden charges
 - 14) Value for money (GCSE Maths content)
 - 15) Fraud awareness
 - 16) Inflation
 - 17) Recession and austerity



Family Maths Evening

- Created and fully resourced event ready to run in schools
- Aim to engage parents and encourage adult learning
- Teach parents new teaching methods to support homework
- Competition - teamwork
- Available to download from the website
- Available from HT 2
- Trial event to be held at The Deanes (date tbc in HT1), all welcome to come and see the event in action prior to hosting their own
- Funding will be provided per adult present

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Careers

- Careers booklet available on the Year Of App plus hard copies will be sent to schools for their libraries and careers offices
- The book will contain profiles of different careers within a variety of industries, including health and social care, hospitality and trades alongside the more obvious mathematical careers such as banking, finance and engineering.
- Each profile will talk about the maths that is used for that career.
- There will be a short interview with someone from each career - available as a video on the app and viewable via QR code in the hard copy.
- For each career there will be a link to a short course on the maths techniques used for the career.
- There will also be a list of employers who offer that role.

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Mentoring/Intervention

- KS3/4 students mentoring/coaching KS2 for maths
- Students given instruction on how to teach identified topics of intervention - these resources will be made available to schools via the website.
- Go into primary schools to complete intervention 1-to-1 with selected students (Year 5 or 6)
- Can be used as volunteering opportunity for DofE.

KS3 Intervention

Underpinning psychological theory: 'Hierarchy of Learning' (Haring et al, 1983)

Acquisition



Fluency



Maintenance



Generalisation



Application/Adaptation

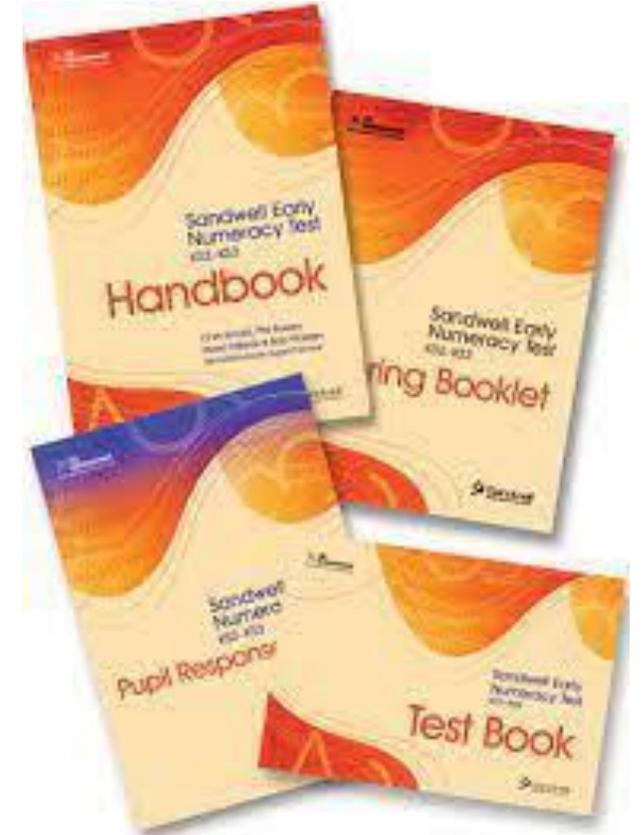
Acquiring the skill, sometimes accurate, some hesitation, need high level of feedback

Perform skill with accuracy and fluency, without hesitation

Fluent and accurate over time, without regular practice

Can use the skill in a variety of contexts

Can adapt the skill to new contexts and use to solve problems



KS3 Intervention

Using the Assessment Through Teaching Model to address Maths Difficulties

Step	Stage	Activity
1	Assess	Baseline maths assessment
2	Plan	Instructional Content: Deciding what to teach
3	Plan/Do	Instructional Delivery: Deciding how to teach
4	Do	Classroom organisation
5	Review	Assess and evaluate learning



KS3 Intervention

Daily Session Structure

1. Fluency element – TTRS, number bonds (Hit the button), decimal facts (flashcards (e.g. CPG), 1 minute maths (White Rose) (application)
2. Revisit and review (accurate/fluent)
3. Targeted teaching (direct instruction)
4. Skills practice and application (maintenance/generalisation/application)
5. Formative assessment to inform next session

KS3 Intervention

Examples of a maths talk topic

True or false:
 $11 \times 8 = 10 \times 8 + 11$

What is the odd one out and why?
4, 9, 12

If I know 3×4
 what other facts
 can I work out?

How could you
 represent 7×5 ?

Activity 4 Check Answers

Write all the calculations you can make using these cards.

730 310 420 = + -

Revisit and review (accurate/fluent)

Go back over the learning from the previous session – This can be in the same structure or thinking about flexibility of maths – variation of the task.

LI:- Represent number to 100.

Hundreds	Tens	Ones
305		

100	10	1

100s	10s	1s
●	●●	●●●
	●●	●●●

10s	1s
1	0

10

Tens	Ones

100s	10s	1s
1	0	0

100

Other Partners

- Microsoft (Minecraft +)
 - Two competitions run in partnership with (and judged by) Microsoft Lots of online materials for pupils, community groups and teachers to help. Open to schools, families and community groups. Entries from individuals and groups.
- MOD (RAF – Lego)
 - For schools with service children the MOD will provide Lego Spike robots and both online and face to face support. Excellent scenario based teaching materials to inspire. If participating schools are in partnerships with other schools that don't have any service children then Year of Number will purchase the robots so they can also engage.
- HSBC
 - HSBC staff will attend school to work with groups of children from Reception to Year 13 on a range of money, number and career sessions.
- Colchester Mercury outreach
 - Details TBC but Essex wide and in conjunction with Local Community Education Partnerships (LCEPs)
- Essex Music Service
 - Using DJing and music production (time codes, Beat per minute etc) to bring maths and music together for hard to reach groups
- Local ideas

Community Projects

 Essex County Council

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Community Projects

Libraries:

- summer numeracy challenge similar to summer reading challenge
- Maths books
- Events
- Talk Listen count

Country parks

- Nature and Number Trails - QR codes
- Read and count with me under a tree (story sacks)



NCETM

National Centre
for Excellence in the
Teaching of Mathematics



 Essex County Council

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Venn Essex Maths Hub

vennessexmathshub.co.uk



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info@vennessexmathshub.co.uk

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Fully funded CPD in 2023 / 24

Our applications are open for CPD for the next academic year, click on the button below to complete our Expression of Interest form or go to our Projects page for more information.

[CLICK HERE](#)

Non Specialist Teacher

Fully funded

Specialist Knowledge for Teaching Mathematics (SKTM)

Secondary Non-specialist Teachers

Highly-regarded professional development offering secondary non-specialist maths teachers valuable CPD focusing on subject knowledge and pedagogy

There are significant numbers of people teaching maths in secondary schools without specialist initial teacher training. This programme supports non-specialist teachers in developing the specialist knowledge (the blend of subject knowledge and pedagogical knowledge) for teaching maths.

It is designed to take place over the equivalent of six days.

Who can take part?

This programme is provided for non-specialist teachers of maths in state-funded schools who fit the following definition: A non-specialist teacher of mathematics is 'a teacher that is currently teaching some mathematics or has commitment from a headteacher/executive head to teach some mathematics within the next year, who has not undertaken initial teacher training (ITT) in mathematics'

Benefits

The SKTM Programme offers participants:

- Your students will develop a deep, secure and connected understanding of the maths they are learning
- You will increase your confidence in planning for progression in maths
- You will improve your subject and curriculum knowledge of secondary maths

The programme is fully funded by the Maths Hubs Programme, so is free to participating schools.

Find out more

Search **SKTM secondary non-specialist maths teachers** online or contact your local Maths Hub
(insert contact email and/or link to further info)

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IN THE TEACHING OF MATHEMATICS

ncetm.org.uk | @NCETM

Coordinators of the Maths Hubs Programme

Professional development to support any secondary teacher that is teaching Maths.

Support the participant with the specialist knowledge for teaching Maths.

Topics include - Fractions, number, trigonometry.

Transition from KS2 -KS3

Fully funded

Years 5-8 Continuity

Work Groups

Strengthen the transition from primary to secondary school

What is involved?

Work Groups in this project focus on curriculum and pedagogical continuity over Years 5 to 8. Participants will collaborate with colleagues from across KS2 and KS3, working on mathematical tasks together and reflecting on the resulting activity and learning.

Sessions will take place in KS2 and KS3 settings, offering the chance to see tasks in the context of a classroom. School-based activities between meetings encourage participants to make use of the resources with their own pupils.

Who can take part?

The project is for those who teach and/or have responsibility for the curriculum in Years 5-8. Participants may be subject leaders or teachers with responsibility for transition in a school. They need to be supported to try out different tasks with their students and be released to attend three full-day workshops.

Benefits

- Your pupils in KS2 and KS3 will demonstrate a positive attitude to maths.
- You will make common use of approaches, representations and language across phases.
- You will deepen your knowledge and understanding of the curriculum across KS2 and KS3 and the expectations of pupils at the end of each Key Stage.
- You and your cross-phase colleagues will collaborate on issues of curriculum and pedagogy as a normal part of your schools' transition practice.

The **Work Groups** are fully funded by the Maths Hubs Programme, so are **free** to participating schools.

Find out more

Search **years 5-8 continuity** online or contact your local Maths Hub
 Email: kaby@vennessmathshub.co.uk

[insert contact email and/or link to further info]

MATHSHUBS

NCETM
 NATIONAL CENTRE FOR EXCELLENCE IN THE TEACHING OF MATHEMATICS

ncetm.org.uk | @NCETM

Coordinators of the Maths Hubs Programme

Working with feeder primary schools on making the Maths transition seamless for pupils as they move from KS2-KS3.

How do Primary and Secondary Schools teach Maths? How can we support our pupils?

Secondary Teaching Assistants

Fully funded

Specialist Knowledge for Teaching Mathematics (SKTM)

Secondary Teaching Assistants

Develop mathematical subject knowledge and pedagogy

What is involved?

This programme is designed to improve the subject knowledge and pedagogical knowledge of all TAs supporting the learning of secondary maths.

Participants will focus on using precise mathematical language, representations, and reasoning within the topics: addition and subtraction; multiplication and division; ratio; and fractions. They will also carry out follow-up tasks in school to enable practice transfer to the classroom. The programme will take place over the equivalent of four days; participants must attend all sessions.

Who can take part?

This is for teaching assistants who work predominantly with students in the KS3 maths classroom or who lead intervention sessions with groups of students. Participants' schools should already be engaged with a Teaching for Mastery Work Group, and this programme will complement this provision.

Benefits

- Your students will demonstrate a positive attitude towards the learning of maths.
- You will use appropriate mathematical language and representations with confidence.
- You will develop your understanding of how to adapt resources to meet students' needs.
- You will develop an understanding of how algebra relates to the generalisation of number.

The programme is fully funded by the Maths Hubs Programme, so is free to participating schools.

Find out more

Search SKTM secondary teaching assistants online or contact your local Maths Hub:
[insert contact email and/or link to further info]

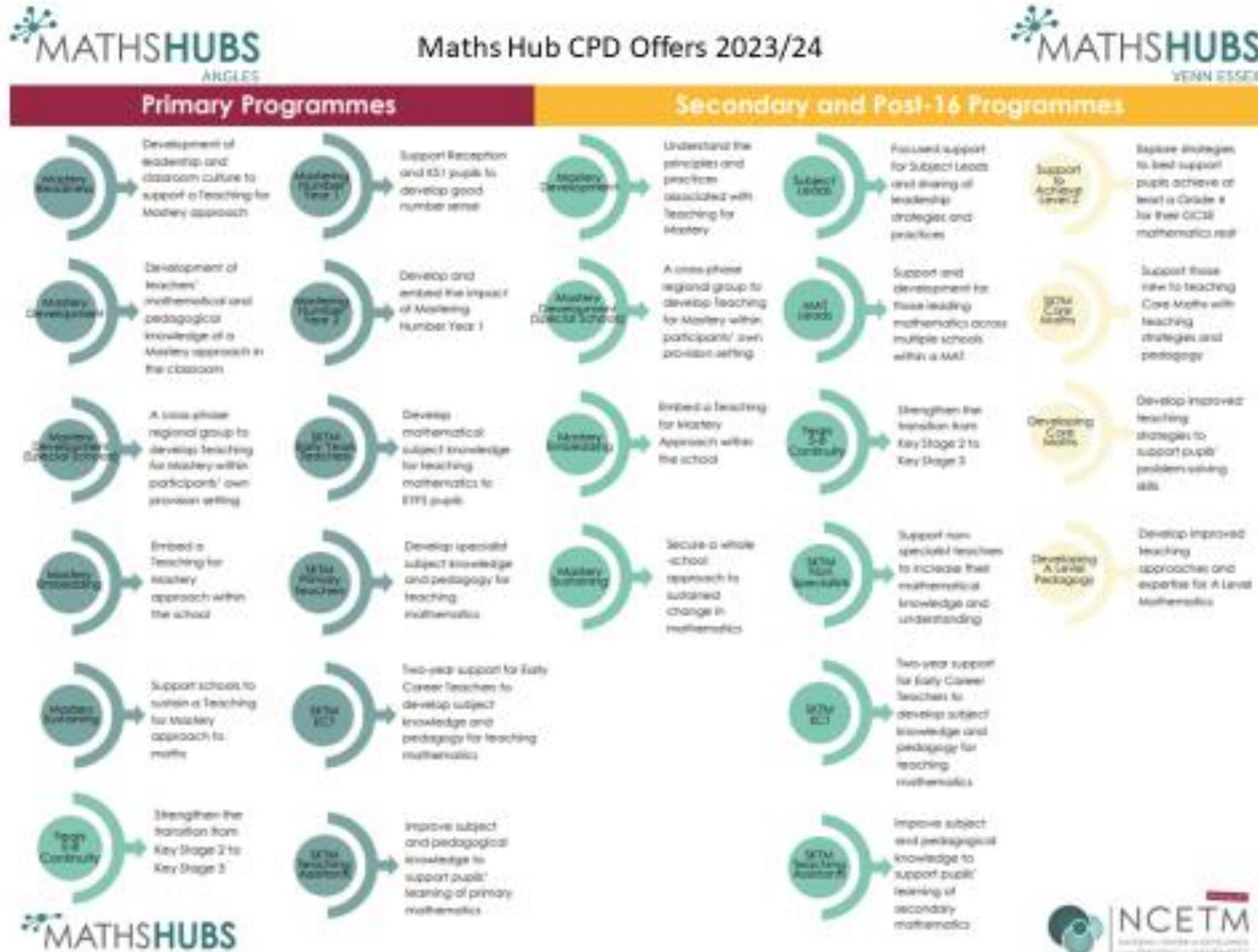
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NCETM
NATIONAL CENTRE FOR EXCELLENCE
IN THE TEACHING OF MATHEMATICS
Coordinators of the Maths Hubs Programme

Supporting Teaching Assistants with strategies to enable pupils to understand Maths they are being taught.

Offering two groups - TAs supporting 1:1s and TAs who are supporting small groups of pupils.

Other Programmes



 Essex County Council

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Making maths count, every day of the year
Good numeracy skills support all elements
of life, from budgeting, managing health and
accessing learning, to progressing at work.



Questions & a question?

The Year of Numbers

Essex.yearofnumbers@essex.gov.uk

<http://www.essexyearofnumbers.co.uk>

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