

Side by Side Conference – Structuring the STEM Curriculum Mathematics

31st March 2022



Jo Walker

**Secondary Assistant Maths Hub Lead -
BBO Maths Hub**



Jennie Forde

**Primary Assistant Maths Hub Lead -
BBO Maths Hub**

NCETM Aim

By 2023 60% of primary schools and 50 % of secondary schools have participated in Teaching for Mastery

Vision

- All students have access to high quality mathematics lessons that will enable them to grow as curious and creative mathematicians.
- High quality training allowing teachers to reflect and improve their school's curriculum, subject knowledge and pedagogy
- Achieved through rich levels of collaboration covering all phases of education
- Reach areas and schools that have not yet engaged
- Create a collaborative, inclusive and supportive mathematical network and community which challenges thinking to fully develop mathematical teaching in our area.



Started in
2014 with
4 schools

626
schools in
our area
2021-2022

476 Primary
Schools,
102
Secondary
Schools,
48 other

Maths Hub are
delivering
30 National
Collaboration
Projects called NCPs
BBO is currently
working in 29 NCPs
which involves
delivery of 71
programmes

1 Senior Lead
Sharon Cromie
1 Maths Hub Lead
Abha Miller
2 Assistant Maths Hub
Lead
Jo Walker (Secondary)
Jennie Forde (Primary)
1 Post 16 Lead
Sarah Gilbert

14
Primary
Mastery
Specialists
Sept 2021

12
Secondary
Mastery
Specialists
Sept 2021

BBO Maths Hub
(SE1) covers
Bucks, Berks
and Oxon is led
by Wycombe
High School

September 2021
67% of schools in
BBO have now been
involved in NCPs
79% Secondary
70% Primary
Teaching for Mastery
51% of Primary
schools
36% of Secondary
schools

3 Maths Hub Admin
Susan Caskey
Stephanie Marchant
Louise Leigh

4 Primary
Mastery
Specialists
in training
Sept 2021

7 Secondary
Mastery
Specialists
Maths in
training
Sept 2021

We are part of a National
Collaborative Network of
40 Maths Hubs

- **What does coherence mean and why is it important?**
- **What do subject leaders need to consider when leading maths in schools?**
- **A view from a school leadership team**
- **How can BBO support your school to achieve this?**

- Curriculum design
- Unit order and what is taught in each year

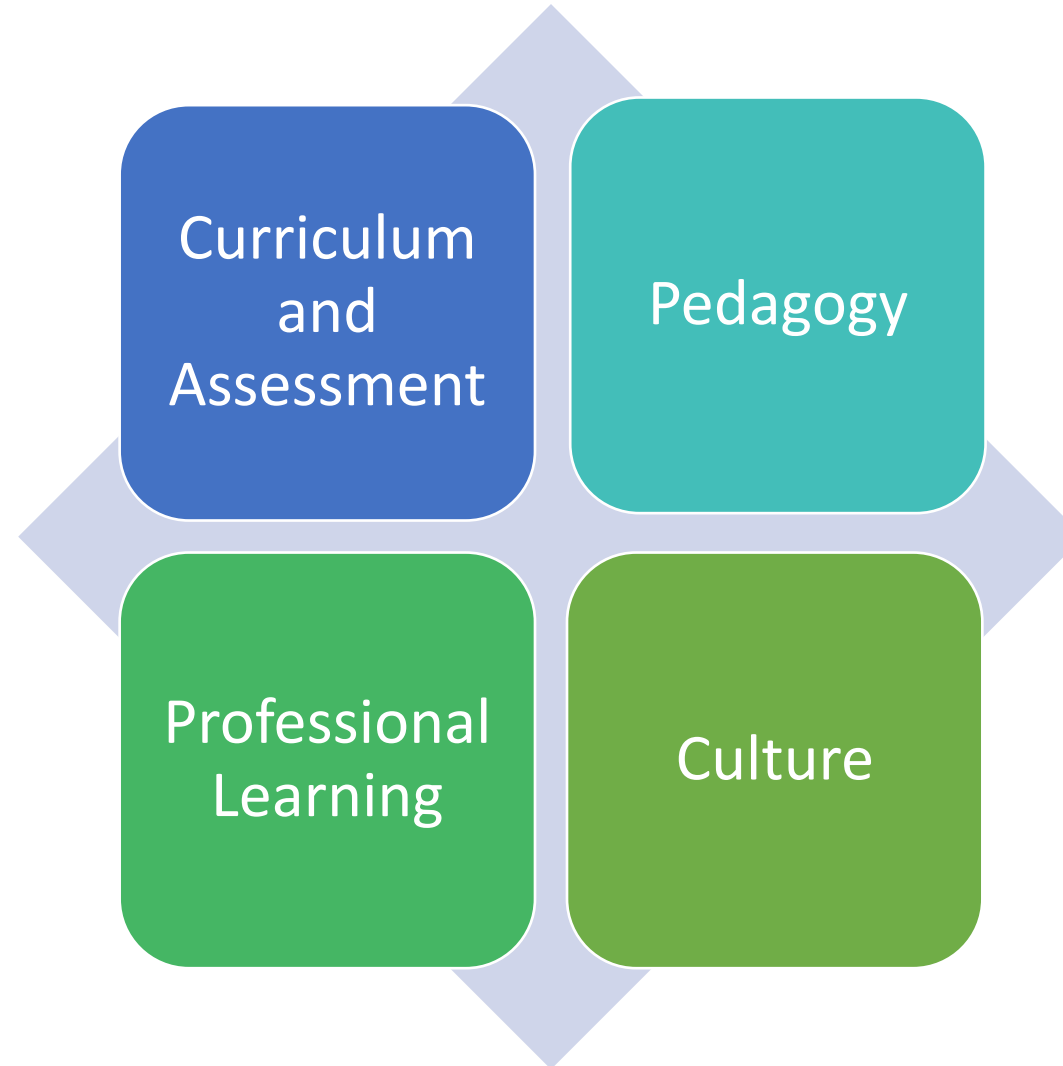
Year 7 Autumn Term	
Number	Algebra
Integers, place value, rounding Integers, four operations on positive numbers Integers, order of operations	Notation, terms and vocabulary Notation and substituting, writing expression, substituting values
Directed numbers, four operations on positive and negative numbers Directed numbers, four operations on positive and negative numbers	Simplifying like terms, adding and subtracting Simplifying, using laws of indices Expanding, using distributive law with a single bracket
Multiples & Factors HCF, LCM, Prime numbers	
Fractions, recognising equivalent and ordering of fractions Fractions, ordering and four operations Fractions, four operations, fractions of amounts Fractions and decimals, place value, corresponding fractions, rounding	

Within unit planning



Within lesson planning





A school experience



Inclusion is at the heart of what we do.

Growth mindset was key for all.



Everyone
can learn math
to the
highest levels

Mistakes are
valuable

Questions are
really
important

Math is about
creativity and
making sense

Math is about
connections and
communicating

Math class is
about learning
not performing

Depth is more
important than
speed

Curriculum & Assessment



Year 3 - Adding and subtracting fractions within a whole

I can add up fractions with the same denominator

I can subtract fractions with the same denominator

I can add and subtract fractions with the same denominator

I can explain that addition and subtraction of fractions are inverse operations

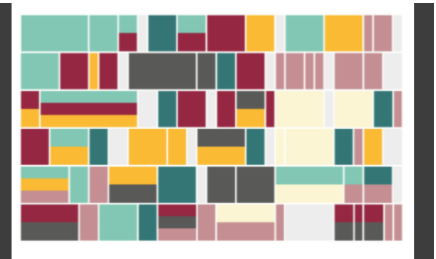
I can subtract fractions from a whole by converting the whole to a fraction

I can represent a whole as a fraction in different ways and use this to solve problems involving subtraction



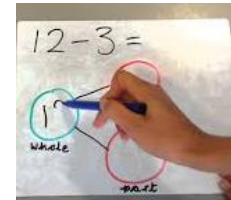
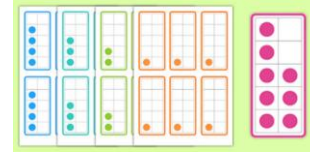
CURRICULUM PRIORITISATION IN PRIMARY MATHS

A term-by-term framework to support planning and teaching in
2021/22 and beyond





Whole class teaching



A pencil has a length of 15 cm.
An eraser has a length of 6 cm.
How much longer is the pencil than the eraser?



Representations to support deep understanding.

Take a small step every day



Small steps to reduce cognitive load



Partner talk to promote mathematical thinking



The kite model – I do, we do, you do



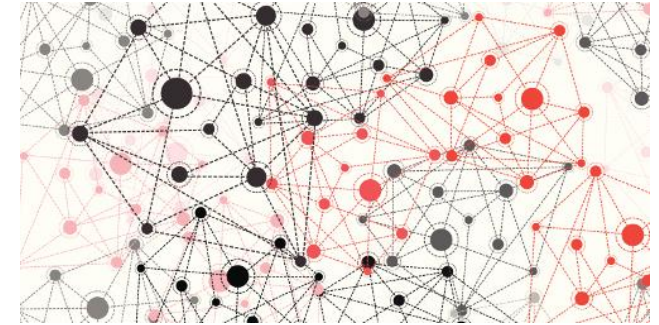
- QoE is crucial to the entire experience
- Strong SEND focus – is it bolt on?
- Strong EYFS focus – is it bolt on?
- Triangulation between all teachers, LAs, leaders, parents and children
- Definition of progress = children knowing and remembering more
- Sequenced and progressive curriculum

Intent

- What is your curriculum intent?
- How does this link to your school vision and context?
- How is it supporting the child's cultural capital?

Implementation

- Curriculum design - how have you ensured coverage, progression and sequencing of the curriculum from the earliest years? How is challenge for all woven throughout?
- Pedagogy - how is it taught and why in that way?
- Knowledge and skills - how are these taught? What opportunities have the children got to apply their knowledge and skills independently?
- How do you support your most vulnerable?



Where are the connections within the different curriculum areas?

Impact

- What is the impact of your curriculum and how do you know? - particular focus on your most vulnerable
- How do you assess in this curriculum area?
- How do teachers identify gaps and what are they doing to address these?

Teachers

Why are you teaching this now?

- What is the progression of skills and knowledge for that subject in their year group?
- What should they know from previous year groups? How are you assessing this?
- What is your next lesson and why?
- How are you assessing what the children have learnt? - what do you do with this information?

Deep dive

Senior leaders
Curriculum intent.
Understanding of implementation and impact.

Curriculum leaders
Long- and medium-term thinking and planning.
Rationale for content choices and sequencing.

Lesson visits
Evaluate where a lesson sits in a sequence, and leaders'/teachers' understanding of this.

Work scrutinies
of pupils in observed classes.
Where possible, jointly with teachers/leaders.

Teachers
Understand how the curriculum informs their choices about content and sequencing.

Pupils
From observed lessons.
How well do they build schema and recall learning.

Books, videos, environment

What learning has happened?

- Do these elements show off your sequenced and progressive curriculum?

Pupils

What have they actually learnt?

- Track back - can they recall content from previous year groups?
- Can they talk confidently about what they are learning/ have learnt?

Tell me about your curriculum. How does it align with your school's vision?

When you designed the curriculum, why did you decide to design it in this way? If you brought into a scheme - why this scheme? How does it support your curriculum intent and school vision?

How is your curriculum sequenced across the year groups from the earliest years?

How are knowledge and skills built on throughout the years?

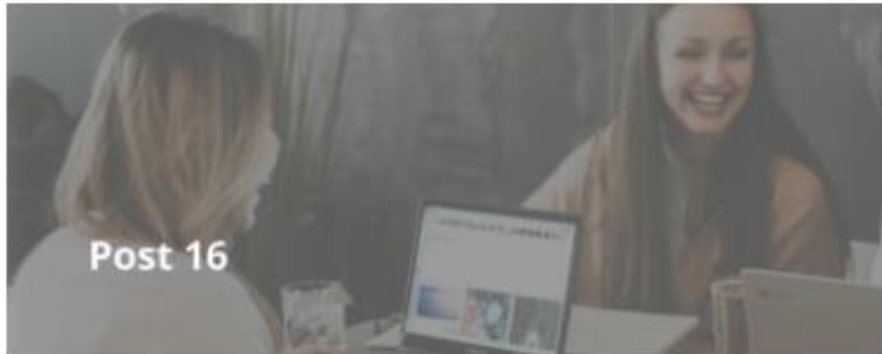
How do you ensure that children know more and remember more in your curriculum area?

What are the areas of strengths and development in your curriculum and how do you know this? How do you development points feed in to your school's areas of focus?

How do you assess in your curriculum?

How do you support SEND/ vulnerable children in your subject? How do you ensure they keep up with their peers?

What PD do you provide your teachers? What PD have you had to develop the curriculum?



We are planning for 2022/23

Mastery Specialists
Teaching for Mastery
Workgroups
Specialist Knowledge
programmes

Professional Development Leads

[> BBO Maths Hub](#)

**BBO Maths Hub
Conference:
28th April 2022**



[BBO Maths Hub Conference – 28th April 2022 Tickets,
Thu 28 Apr 2022 at 09:00 | Eventbrite](https://www.eventbrite.com/e/bbo-maths-hub-conference-28th-april-2022-tickets-28848488888)

Any Questions?