

Mastering Number YR and KS1

East Midlands South Maths Hub

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What is Mastering Number? (YR and KS1)

The programme aims to secure firm foundations in the development of good number sense for all children from Reception through to Year 1 and Year 2. The aim over time is that children will leave KS1 with fluency in calculation and a confidence, flexibility and fluidity with number. Attention is given to key knowledge and understanding needed in Reception classes, and progression through KS1 to support success in the future.

A key feature of the programme is also to develop children's ability to spot patterns and make connections and develop a "can do" attitude.



KS1



- In Key Stage 1 the Mastering Number programme is in addition to the main maths lesson. It is a 10-15 minute daily fluency session for approx. 30 weeks of the academic year. All the planning, resources and PPT slides are created and in place for schools to use. The planning overviews contain a Subject Knowledge section which are essential for teachers to read and then there are plans which detail the key learning moments throughout the session including optional extra activities for children that may need consolidation or extra practise. The PPTs slides are pupil friendly and contain appropriate representations such as tens frame and PPW models to reveal mathematical structures. There are also stem sentences which support the children to develop their mathematical explanations.

Reception

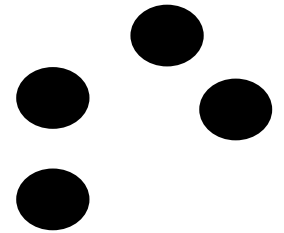


- In Reception, the Mastering Number programme will cover all the Number objectives/curriculum needed. The planning is very comprehensive and includes main teaching activities, small group activities, continuous provision ideas and routines across the day.
- It doesn't cover the pattern and shape, space and measures elements of the curriculum but we recommend schools use the NCETM progression documents to plan these parts of their curriculum.
 - No Hub engagement
- For Reception, the programme is 4 days a week for 5/6 weeks per half term so it is recommended in those spare weeks the other areas of the maths curriculum can be taught.

Feedback from a Reception Teacher

- Early Learning goals in Number

- Have a deep understanding of number to 10, including the composition of each number.
- Subitise (recognise quantities without counting) up to 5.
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.



Small group work	Continuous provision	Routines
<ul style="list-style-type: none"> Ask the children to build towers from blocks or interlocking cubes to match the numeral cards or <u>Numberblock character cards</u> used in Session 2. <i>Can you put them in order? Which tower comes first? What do you notice? Where can you see the '1 more'?</i> Use towers of interlocking cubes to represent <u>Numberblocks One to Five</u>. Place them in order in front of the children. <i>Now, close your eyes while I take 1 tower away. What's missing? How do you know? Where can you NOT see the 1 more?</i> Use construction blocks, hoops, stackable toys or other large objects of similar size to build staircase patterns outside. <i>Can you help me to build some big towers for 1–5 that get taller like a staircase? First, I'm going to put 1 hoop here. The second tower is going to have 2 hoops like this. What goes next? How do you know?</i> Use chalk to help small groups of children to draw and describe staircase patterns in the outside area. 	<ul style="list-style-type: none"> Provide opportunities for building towers out of various blocks in both indoor and outdoor play areas. Display pictures of the <u>Numberblocks</u> without their numerals (from Session 2) as inspiration. Provide individual pictures of the <u>Numberblocks</u> without their numerals and/or squares of card made into towers (both from Session 2) for the children to put in order. Create a staircase pattern using the resources detailed in Session 2 and place it in a play tray, with objects such as pom-poms, square counters, stickers or buttons for the children to use to make their own staircase patterns. Some children may want to record what they have made with their own graphical representations. <i>Talk to me about the pictures that you've drawn.</i> 	<ul style="list-style-type: none"> At lunchtime or when choosing children for an activity, use ordinal numbers: [...] can line up first, [...] can be second, and so on. When giving instructions, illustrate them with ordinal numbers and finger representations at the same time. <i>First</i> [hold up 1 finger], <i>put your things in your trays</i>. <i>Second</i> [hold up 2 fingers], <i>we'll choose our fruit snacks</i>. <i>Third</i> [hold up 3 fingers], <i>we'll have our story</i>. <i>Who can tell the class what we're going to do first?</i> [Hold up 1 finger]

My personal Journey with MN

Year 2 – progression

What have we noticed over time? Ofsted Feedback

- School context
- Year 1 children
- Partitioning in different ways / bridging 10
- 5 and a bit structure is secure
- Bonds to 10 are secure
- Fluidity and flexibility with making connections
- The structures don't change, the numbers do!
- No longer an over reliance on counting – Impact on KS2 (cognitive overload
- Staff feedback)



Feedback from a school (Cohort 1)

Q&A



- Headteacher quote:
- *‘Mastering in Number has impacted on every element of the teaching of number knowledge and skills in our school. We have seen a real shift in how the children see and manipulate number in all aspects of their maths work, not just during Mastering Number sessions. Their fluency, vocabulary and reasoning skills have all developed through the use of Mastering Number and we see the impact that it has on their understanding of number daily through the way in which children articulate, gesture and represent their knowledge. For teachers it has developed their confidence and enjoyment of the teaching of number, leading teachers to really see the benefits of the programme and value the training. This is our third year on the Mastering Number programme and we have seen the children’s knowledge and skills build and progress year on year.’ Jan Marshall*

What are Ofsted saying?



- The Ofsted report [Coordinating mathematical success: the mathematics subject report](#) was published in July 2023. It contains recommendations for primary and secondary schools to develop effective maths teaching and curriculum.

Mastering Number

‘organisations should offer Mastering Number to all schools as an example of good practice in early mathematics’

- <https://www.ncetm.org.uk/media/zeobpbp5/mastering-number-ofsted-report-portrait-final.pdf>

Video clip

- <https://www.ncetm.org.uk/maths-hubs-projects/mastering-number-at-reception-and-ks1/>
- The short videos below give a flavour of a Mastering Number session. The teachers explain how the programme has benefited all pupils in their classes, providing firm foundations for later work in maths.
- Axis online portal



Who can take part?



- This programme is open to applications from all schools that have not yet engaged with the Mastering Number Programme.
- Each school will identify 3 Lead participants - one each from Reception, Year 1 and Year 2 – known as Lead Teachers. These teachers will attend the CPD sessions and support will be given on how to lead/disseminate the learning/materials with colleagues in school.
- Support will also be given to subject leaders and headteachers. The support will aid with strategic development and sustained change over time.

What is involved?

- Half termly CPD (3 national sessions and 3 local session)
- It is essential that lead participants attend all training sessions to ensure they understand all the important learning and concepts and thinking behind all the materials
- Engagement in an online community to reflect and work collaboratively with other schools
- WGL responds to the needs of the work group and creates bespoke local sessions.



What is the cost?

- It is a fully funded 2-year package of support
- Y1 – Understanding the materials, focus on practice development, professional knowledge, whole school development and pupil outcomes
- Y2 Embedding the Impact



Embedding the Impact – Pupil Outcomes



- The teachers that work with us then go on to champion Mastering Number by their second year as they see the impact immediately in the first year with the children.



- “The impact on the children’s ability to talk about maths - it also helped get a ‘Good’ ofsted. Children’s maths talk was listed as a strength.”



Teacher Outcomes



- “I really like that the representations are varied and when showing counters they are not always in a typical layout, allowing the children to develop real fluency with subitising.”

Mastery subject knowledge in teachers grows so much by the end of the first year.

They are aware of mathematical variation, the importance of mathematical language, fluency and representations.

Outcomes for Leaders



Research and analysis

Coordinating mathematical success: the mathematics subject report

Published 13 July 2023

- make sure that discussions with leaders about progress specifically address the needs of the lowest-attaining younger pupils
- aim to prioritise resourcing for younger year groups, to better engineer success from the start of a pupil's mathematics journey
- when leaders observe lessons, focus on pupils' thinking and the **quality and quantity of practice they undertake**

Axis support



VIDEOS – YEAR 2

Mastering Number video materials for Year 2 teachers

Recording of teaching summer 2022

Mastering Number Year 2 Clips from NCETM

2 of 9 Visualising the rekenrek

Year 2 Session

Clip 2: Visualising the rekenrek

Mastering Number Year 2 Session Clip 2: Exploring equations with missing parts

03:27

Exploring equations with mis...

NCETM NATIONAL CENTRE FOR EXCELLENCE

02:40

vimeo

YEAR 2

Related Pages

Weeks 1 to 6 – Year 2

Mastering Number: Year 2

Weeks 6 to 10

NCETM NATIONAL CENTRE FOR EXCELLENCE

1:10:45

- Why teachers love mastering Number!

● “The powerpoints are so simple and easy to follow with excellent, carefully chosen visuals. I like how the stem sentences/call and response are on to remind me of what exactly to say..”

● “Key questions on the session plans to delve deeper into the subject - Animated slides to engage the children.”





- **They are really confident in recognising commutativity and different parts that make a whole. I find it great for re-capping other concepts we have looked at before.**
- **I find on the surface it seems a lot 'simpler' than the white rose content however it isn't; it really digs a lot deeper and has given them a fantastic sense of what makes a number etc**



Closing Comments and Next steps

- Apply ASAP – deadline is 22nd March
- Google link in chat to apply

- If successful, we will have a session in the summer 2 to ensure schools are prepared and ready to start in the Autumn Term
- Dates given early to prioritise in school calendars



Any Questions

