

# Maths at Middle Barton

## Overview

We follow a [mastery approach to maths teaching](#) and are in our second year of 'embedding' this approach with the NCETM and the BBO maths hub. We aim to follow the [5 Big Ideas of Mastery](#) (representation and structure, mathematical thinking, variation, fluency and coherence).

## Planning

- Use [White Rose schemes of learning](#) (either single year or mixed age) for curriculum coverage. Important to follow the schemes' order and the blocks and small steps.
- Must look at [White Rose progression documents](#) when planning a new unit in order to see previous and future coverage of that concept- important for mixed-year group teaching and also revisiting prior knowledge
- Look at [kangaroo maths](#) documents for **common misconceptions** and add these to your front slide of your lesson- address throughout lesson/block
- Look at the [NCETM PD materials](#) for ideas of progression of concepts- focus on the [stem sentences](#)
- Teachers may wish to use 'S' planning like we did in the staff CPD session last year (mapping out key concepts and order of them and planning a unit at a time). No requirement to write 'written' plans- the slides (see lesson structure below) are sufficient as long as the areas above have been carefully considered and the first slide is completed in sufficient detail

## CPA approach

- **We use a concrete-pictorial-abstract approach in our lessons.** New concepts are introduced using concrete manipulatives (e.g. place value grids and counters, Base 10 equipment, numicon, cuisenaire rods, number lines, bead strings etc.) and pictorial representations e.g. part-whole model and bar models. **All children** have access to concrete manipulatives, not just those working below expected standards. Once children become confident with the abstract understanding, the scaffolds of concrete resources are removed- children should not become dependent on them.
- [Document for suggested resources/representations](#) and [CPA calculation policy](#)

## Marking, feedback and assessment

- Strong focus on [verbal feedback](#) during the lesson- especially through [whole class marking](#) and discussion
- [WALTs will be highlighted](#) after each lesson (green/amber/pink)
- No obligation for written teacher comments in books
- Children mark in purple pen, teachers in green if necessary.

## Working Walls

- All classes must have a working wall which is **regularly updated** in line with the current block. Best practice shows it is most effective when it is clearly referred to during the lesson.
- Must have: [key vocabulary](#), [sentence starters \(I know..so..\)](#) and [stem sentences and a variety of CPA representations](#). Worked examples of modelled reasoning answers also helpful.

## Calculation policy

See CPA [Calculation policy](#) here

## Lesson structure

- **All lessons to follow set structure using our [google slides template](#).** Please see examples [here](#). First slide should essentially be the teacher's plan and will include [key concepts](#), [vocabulary](#), [stem sentences](#), [representations](#), [any manipulatives needed](#) and [common misconceptions](#). Lessons will begin by [revisiting prior knowledge](#) and recapping work from the previous lesson/week. [Vocabulary and stem sentences](#) will be explicitly taught and shared with children. As part of teacher's [modelling](#), you will explore the [conceptual variation](#) of the concept e.g. by offering examples of what it is and what it is not.
- **Modelling:** in line with mastery teaching, rich discussion is encouraged throughout the lesson with a 'ping-pong' style of discussion between teacher and pupils. Teachers should clearly model new concepts through use of stem sentences, worked examples, use of manipulatives and their 'thinking', before giving pupils a chance to practise, then come back together, mark, feedback, then another question etc. Keeps lesson pacy and children broadly at the same rate. [Children encouraged to agree/disagree/challenge/build on what their peers have said and justify their reasoning using key vocabulary](#).
- **Activities** will be split into three main groups: **do it, twist it and challenge it**. These progressively become harder and require further challenge. 'Do its' are often fluency based, whilst the latter two may be more reasoning/problem solving style questions. It's important that [all children have the opportunity to experience all questions types](#) and the challenge it questions should not be left solely for the 'rapid graspers'. There may not be time in each lesson for all three activity types but they should be covered several times a week.
- **Resources:** mixture of [whiterose fluency/reasoning/problem-solving resources](#) (we also have access to their premium resources), [Classroom Secrets activities](#), [Gareth Metcalfe's I see Reasoning and I see Problem Solving activities](#), [NRICH activities](#) and [NCETM mastery materials](#) as well as other rich tasks.
- **Fluency sessions:** TBC in September/upon normal return but will ideally be taught as standalone sessions of 15-20 minutes. Focus on learning key number facts/bonds/multiplication tables through procedural variation- purposeful practise. Use of [White Rose Flashback 4 Daily Fluency resources](#)

## CPD

- Speak to Jess if you would like to engage in further CPD opportunities, there are often free [mastery work groups](#) on various subjects running across the year. Can also arrange to go and view other mastery maths lessons within school and at other schools in our Trust.
- Strongly encourage teachers and those TAs who are interested to complete the [White Rose online CPD modules: CPA approach, bar modelling and variation](#).
- See [CPD folder in the shared drive](#) for some recorded webinars

Jess Arthur, Maths Lead, 2020