Mathematics at Lozells Primary School

At Lozells School we believe everyone is capable of learning mathematics, given sufficient time, good teaching, appropriate resources and effort. We aim to build resilience in pupils to ensure all pupils leave us with sound mathematical skills, which will enable them to realise their potential wherever they live and whatever their background.

At Lozells we teach for mastery. This means that all children are taught one set of mathematical concepts and the big ideas in mathematics. Lessons are carefully crafted in order to allow all pupils to access these concepts and ideas and explore the rich connections between them. We have high expectations of our pupils and strive to make the mathematics curriculum accessible to all, providing different tools to scaffold learning and questions to challenge deeper thinking. Pupils across a year group will move through the programmes of study at broadly the same pace. We recognise that all children need a deep understanding of the mathematics they are learning in order that future learning is built upon firm foundations.

We believe that the three aims of the NC should be addressed every day Fluency – **Reasoning** – **Problem Solving** and aim to intertwine them throughout our teaching sessions.

Mathematics Planning :

Whole class together – we teach mathematics to whole classes and do not label children (this includes within the classroom). Lessons are planned based on formative assessment of what students already know and we include all children in learning mathematical concepts. At the planning stage, teachers consider what scaffolding may be required for children who may struggle to grasp concepts in the lesson and suitable challenge questions for those who may grasp the concepts rapidly. Decisions are not made about who these children may be prior to the lesson.

Longer and but deeper – in order to address the aims of the NC, we have personalised our long term and medium-term plans to allow longer on topics. Each lesson focus is on one key conceptual idea and connections are made across mathematical topics. To outsiders it may appear that the pace of the lesson is slower, but progress and understanding is enhanced. Our assessment procedures recognise that the aims of the curriculum cannot be assessed through coverage (ticking many objectives off a list) but through depth within a topic too.

Key learning points are identified during planning (collaboratively in year groups) and a clear journey through the maths should be shown through lesson slides (also reflected on working walls).

Questions will probe pupil understanding throughout and responses are expected in full sentences, encouraging the use of precise **mathematical vocabulary**.

'**Tricky bits**' are identified during the planning process and children will be supported through these.

Fluency – We recognise that 'fluency' is not just about remembering facts and develop all aspects of fluency through lessons and additional fact fluency sessions. At Lozells there is whole school focus on developing an instant recall of key facts, such as number bonds, times tables and unit + unit addition facts. Regular homework and parent workshops support this.

Lesson Structure

Exploration - instead of 'Let me teach you…' as a starting point, children are encouraged to explore a problem themselves to see what they already know. At the beginning of each lesson this exploration is referred to as the '**anchor task**'. Lesson objectives are not shared with the children at the beginning of the lesson, because we want the children to reason for themselves. At some point from the middle or even at the end of the lesson, the children will be asked what they've been learning that day. Children will write a 'title' in their books, but this may not look like a NC learning objective.

Develop reasoning and deep understanding (contexts and representations of mathematics) – problems are usually set-in real-life contexts - carefully chosen representations (manipulatives and images) are used by all to explore concepts. These representations will appear in books as children show their understanding, rather than answers to a series of calculations. The use of practical resources, pictorial representations and recording takes place in every lesson (the CPA approach).

Structuring - the teacher will organise the findings of the exploration, compare/contrast strategies and guide toward the most efficient strategy (or the one being learnt that day).

Step by step approach – journey through the mathematics (these steps may appear small, especially at the beginning of a lesson, there are points when suddenly a jump appears to have been made, or an extra challenge appears – this is normal). The lesson slides should show this step by step approach.

Questions to challenge thinking – teachers use questioning throughout every lesson to check understanding – a variety of questions are used, but you will hear the same ones being repeated; How do you know? Can you prove it? Are you sure? Is that right? 'What's the value? What's the same/different about? Can you explain that? What does your partner think? Can you imagine? Listen out for more common questions you hear. Questions are also used to challenge children who have grasped the concept. Children are expected to listen to each other's responses and may be asked to explain someone else's ideas in their own words, or if they agree/disagree etc.

Due to the episodic style of the lessons with frequent questioning, lessons may appear to move slower than in the past. There will be more talking and less recording in books. The recording that does take place however shows greater depth of understanding and intelligent practice. Teachers may decide to have a guided group working with them in a lesson if needed or the TA (whilst other members of staff may circulate).

Discussion and feedback – pupils have opportunities to talk to their partners and explain/clarify their thinking throughout the lesson, but are expected to complete written work independently (unless working in a guided group with the teacher).

Journals - recording the *learning* – not just pages of similar calculations – in Y1 – Y6 maths journals are being developed, you will see maths books used for both journaling activities and practice –We are developing the use of journals and compare our journals with those from other schools on the Mastery Specialist Programme.

EYFS have begun to use floor books to capture their learning these also include a range journaling demonstrating the children's thinking and understanding.

Reflecting/Practice –Across the school we are using White Rose Maths and the NCETM spine materials to aid our planning and lesson design.

Rapid intervention (same day catch up) – in mathematics new learning is built upon previous understanding, so in order for learning to progress and to keep the class together pupils need to be supported to keep up and areas of difficulty must be dealt with as and when they occur. We do this through same day keep up sessions of 10-20 minutes at a time suited to the class teacher and child. In addition, we still run intervention sessions outside of the maths lesson for some targeted children which will address prior gaps/fluency.

Marking – the marking policy for mathematics acknowledges the different style of teaching in maths, and follows the NCETM guidelines published April 2016. Light marking is seen in books and teachers use a marking/feedback book for daily maths lessons, which inform same day keep up children, wow moments, opportunities for challenge, identify tricky bits and move the learning forwards.

SEN pupils – may be supported by additional adults, different resources, differentiated activities. They will also complete additional activities outside of the mathematics lesson. SEN children will be working on their own personalised continuum targets from the 'maths toolkit' We have high expectations of all children and strongly believe that all children are equally able in mathematics. Some may take longer to grasp concepts and may need careful scaffolding or extra time/support (guided groups, same day catch-up, additional homework, pre-teaching, intervention group, after school clubs, specific parent support).

Many thanks for showing an interest in our mathematics teaching, we do hope you find your visit useful and welcome any feedback.

Anna Reka – Updated April 2024

(Maths Lead)