



Curriculum statement for the teaching and learning of Maths

Intent	Successful	Happy	Ambitious	Responsible	Proud
	Understanding and applying new concepts makes us SUCCESSFUL mathematicians	We are HAPPY and safe risks when applying new skills learnt in maths	As AMBITIOUS mathematicians we are willing to tackle challenging mathematical problems	We are RESPONSIBLE for our effort and attitude towards maths	As our learning and knowledge grows we are PROUD of our achievements
	At Sharpness Primary School, we follow a mastery approach to the teaching of the mathematics objectives laid out in the National Curriculum. It is our belief that all pupils can achieve and succeed in maths. In order for this to happen, teachers use their understanding of key principles to guide learning and build conceptual understanding in relation to the three main aims of the mathematics curriculum: fluency, reasoning and problem solving. We also acknowledge the value of pupils having rapid recall of basic fluency facts such as number bonds, times tables, equivalences, etc. Such aspects are developed as an aid to general arithmetic and to free up working memory so that pupils can apply their knowledge to deep thinking tasks and problem solving.				
	Our key priorities/curriculum drivers				
	Aspirations	Developing oracy and widening vocabulary	Developing children's understanding of different cultures	Providing experiences	
Underpinned by	Can Do Maths	Accessibility of resources	TT Rockstars Table Tables	Mastery Approach	Growth Mindset 'A Can-Do attitude to maths'

Concrete

Pictorial

Abstract

Concrete
Pictorial
Abstract
Make sense
Prove or disprove

- Reduce cognitive overload
- Number facts
- Times tables
- Procedural fluency
- Fluency is tracked

Representation and structure

Fluency

Small steps easier to take

Variation

Mathematical thinking

- Make connections
- Sequenced journey
- Questioning
- Misconceptions
- Deep understanding
- Intelligent practice

- 1.What is the answer?
- 2.Describe the method you used
- 3.Why does the method work, what relationships are involved, what generalities or rules can we glean?

Procedural variation

Conceptual variation

$$224 \times 4 = \begin{array}{r} 224 \\ \times 4 \\ \hline \end{array}$$

x	2	0	0	2	0		4
4	8	0	0	8	0	3	2

In a typical lesson pupils sit facing the teacher and the teacher leads back and forth interaction, including questioning, short tasks, explanation, demonstration, and discussion.

Intelligent practice

All pupils work on the same objectives at the same time. However, work is set at an appropriate level, with pupils being given the support and challenge relative to their own developmental needs. Teachers use structured schemes of work through 'Can Do Math's' that provide a coherently sequenced curriculum, pedagogical guidance and lesson resources. In addition, ICT software is used to support fluency and recall, and to provide support to teachers in terms of the planning and marking (AfL) of work. Teachers have all received training on the mastery approach, with this including an understanding of the '5 Big Ideas' and the concepts of 'keep-up' and 'catch-up' interventions.

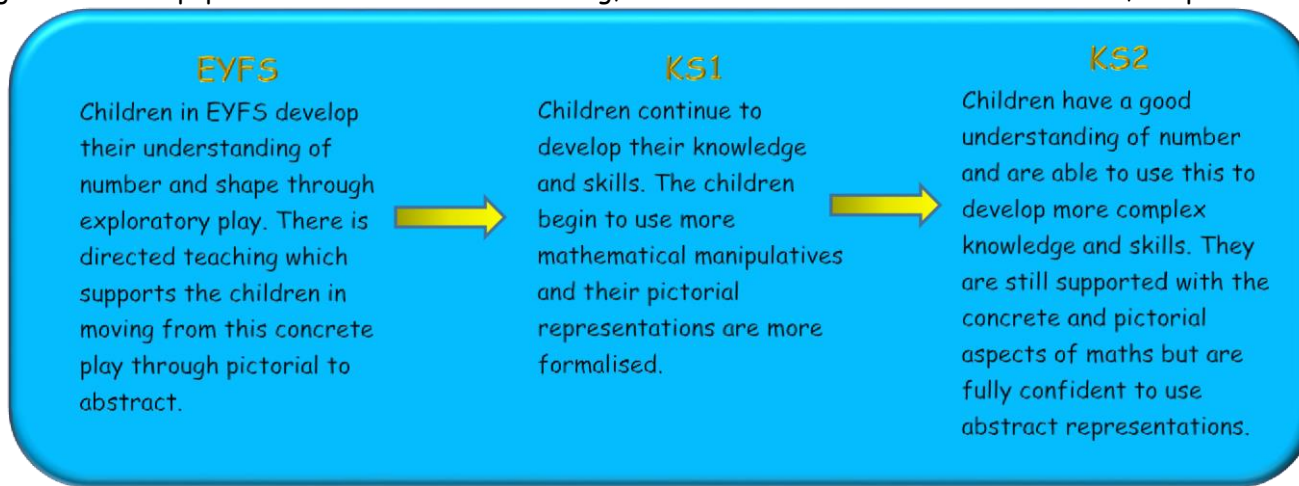
We do not believe that pupils should be 'labelled' or 'capped', with 'fluid groupings' being used to give all pupils the chance to work at their optimum level in any given mathematical topic. Teachers will provide appropriate support where needed (e.g. worked examples, adult intervention, resources, differentiation) while challenge comes in the form of deepening activities, constraints and the use of 'low threshold high ceiling tasks' that allow pupils to extend their thinking.

At the heart of maths is problem solving, with this being a central focus that provides a means of developing understanding and relating maths to the real world. To be successful in this, pupils need to develop conceptual understanding, so lessons utilise a Concrete-Pictorial-Abstract approach. They also provide opportunities for pupils to reason about mathematics through spoken and written communication, as this has been shown to have an impact on understanding and success rates (Morgan, 1995; Gergen, 1995).



This means that the development of pupils' mathematical vocabulary through clear expectations and classroom discussion is a feature of lessons.

To make lessons engaging and meaningful, we believe that mathematical thinking is a key activity for pupils to do, with the teachers' questioning being a crucial way to probe and develop this. Lessons also provide opportunities for pupils to imagine, explore, conjecture, prove, specialise, generalise, organise and classify, as these 'mathematical powers' - along with the use of variation - are key ways to help pupils notice patterns and develop an understanding of the number system (Mason and Johnston-Wilder, 2004). Our maths teaching also provides opportunities for pupils to learn to recall key facts, with retrieval practice being used to embed key knowledge in the long-term memory. These facts support better understanding and problems solving by supporting the limitations of working memory. To pull this together and keep a check of pupils' development, we use a simple 'feed-forward' marking system that signals whether pupils will need corrective teaching, or where work should aim to consolidate, deepen and challenge.





	Implementing our key priorities/curriculum drivers			
	Aspirations	Developing oracy and widening vocabulary	Developing children's understanding of different cultures	Providing experiences
	We encourage pupils to deepen their understanding through never giving up when faced with a challenging maths problem.	We place a great importance on using correct mathematical vocabulary when explaining our understanding.	We explore maths in other cultures from the Rangoli patterns of India to the calendars of Ancient Egypt.	STEM days Maths Workshops
Impact	We measure impact through learning walks, book scrutiny, formative and summative data, and pupil/parent/teacher voice. SLT meet regularly to evaluate impact and assess pupils' learning; this is supported by pupil progress meetings			



	Pupil Voice Through discussion and feedback, children talk enthusiastically about how they love learning about maths. Children show confidence and believe they can learn about a new maths area and apply the knowledge and skills they already have.	Evidence in Knowledge Mathematical knowledge is built in a number of ways including; mental arithmetic, times tables, shape knowledge (names & properties), measurements and graphs.	Evidence in Skills Children develop skills in problem solving and reasoning in order to answer difficult and complex questions. Children are able to apply their knowledge to solve problems	Outcomes We have high expectations of the children and ensure that they reach their potential throughout their time in school. This will be indicated by their achievement in the standardised tests at the end of KS1 and KS2. Children who have gaps in their knowledge receive appropriate support and intervention. End of key stage outcomes: • All children in EYFS to achieve the ELGs in Number and Number Patterns* • The percentage of children at the end of KS1 and KS2 attaining the Expected and GDS standard is at least in line with national for all groups of pupils • The percentage of children passing the MTTC in Y4 is at least in line with national <i>*unless a specific SEN prevents attainment (progress will be evident across the year)</i>



	Impact of our key priorities/curriculum drivers			
	Aspirations	Developing oracy and widening vocabulary	Developing children's understanding of different cultures	Providing experiences
	Children leave school with a love of maths and a deep understanding of the subject. They are not afraid to face a challenging maths problem and approach the subject with a positive mindset.	Children are able to use a wide range of mathematical vocabulary to support their explanations to complex problems.	Children's knowledge of other cultures is supported by their work and achievements in maths.	Children have access to experiences which enable them to aspire and set goals for themselves in order to broaden their horizons.