Curriculum - Maths

Intent:

In line with the Statutory Framework for the Early Years Foundation Stage, we believe that developing a strong grounding in number and providing rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures, is essential so that all children develop the necessary building blocks to excel mathematically.

The national curriculum for mathematics aims to ensure that all children:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason** mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

At Potten End Primary we use the Herts ESSENTIALS maths program across Reception, KS1 and KS2 in order to deliver the three aims of the National Curriculum, fluency, reasoning and problem solving. Underpinning this pedagogy is the belief that all children can be nurtured to grow, flourish and make progress in maths. We therefore believe in promoting a deepening understanding by employing a range of strategies with teaching for conceptual understanding being at the heart of what we do. Our language-rich approach aims to provide all children with access to an age-related curriculum enabling them to make links and communicate their understanding, therefore learning more, remembering more and doing more. We aim to promote a sense of passion and curiosity about the subject so that we grow independent, resilient, confident mathematicians who are well equipped to apply their learning to the wider world and have the knowledge and cultural capital they need to succeed in life.

Implementation:

In the EYFS, maths is implemented through a mix of adult-led and child-initiated activity which is sequenced as a spiral curriculum and planned, purposeful play. With an understanding of the necessity for repetition and a rich variation in context, the sequencing of the learning informs the direct teaching and adult roles when responding to the children's learning, providing for a progression in the children's conceptual understanding. We provide frequent and varied opportunities to build and apply understanding, knowledge and vocabulary through the use of ESSENTIALS Foundations for counting: Comparison, Classification, Pattern, Group recognition- subitising- and the conservation of number and through Reception ESSENTIAL Maths. By developing the children's use of manipulatives including tens frames for organising, our children will develop a secure base of knowledge and vocabulary and a positive interest in mathematics. They will '**notice, copy, extend and create**', look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes. We provide children with opportunities to count

confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers.

Across KS1 and KS2, the ESSENTIAL maths sequences promotes carefully planned progression that ensures consistency and 'stickiness' of learning across the school building on their prior knowledge and understanding. Sequences are written as a spiral curriculum in which learning is built upon step by step, sequence by sequence and year on year. It is aspirational and ensures progression and coverage through the primary phase.

Teachers follow long term plans which provide an overview of the learning for each term. Using forensic diagnostic information, these are reviewed and adjusted at the end of each academic year by the subject leader, in order to re-focus the curriculum sequencing to address each class' specific needs. In doing this, we maintain the ambition to meet at least curriculum expectations each year.

Stepped learning opportunities then demonstrate the order of learning within each sequence. Destination questions exemplify the range and pitch of examples children should be able to answer by the end of the sequence and these are expected to be used within daily teaching sessions as regular AfL opportunities. The steps in the sequence build on each other. Children should be given differentiated levels of challenge within each step and opportunities for exploring at greater depth in some steps, in order to further deepen and challenge their learning.

Sequences often contain speaking frames to support the children's development of language and ESSENTIALS planning exemplifies the standard of talk, vocabulary and the reasoning expected of pupils. Models, drawings and symbols show how concrete resources can be used during the direct teaching session. Buffer zones signal where teachers should stop and check that learning so far has been secured for all children before moving onto the next step. Pre-teaching or targeted interventions may then be needed to ensure children secure the learning.

Long term planning assumes that pupils will have secured the learning from previous year groups. Teachers at Potten End will judge each class' prior learning (through whole school evaluation and monitoring) before beginning the sequence to drive effective implementation. This will include how well pupils are coping with the language, variety of representation and recording requirements. At Potten End we promote whole class teaching rather than streaming or ability groups however this may be seen throughout pockets of the school.

In addition to daily maths lessons, we teach regular fluency sessions in Y1-Y6. The aim of these is to rehearse core learning which has been previously taught in order to keep it fresh over time, to reactivate prior learning, increase the "facts at the fingertips" (including base facts such as multiplication tables), to provide all children with access to the age-related curriculum, and to develop language and reasoning to secure understanding with sufficient depth. These sessions are also used as an opportunity for Assessment for Learning across the school.

Impact:

Through targeted staff CPD, we support teachers to ensure children's knowledge, skills and understanding are assessed daily through the use of AfL and destination questions and we triangulate this teacher assessment with the use of End of Term assessment papers (completed termly), daily assessment for learning, pupil and staff voice and effective monitoring and evaluation.

We aim to increase the proportion of children achieving ARE/ARE+ across the school and secure the teaching of fluency to close the gaps for all children. We ensure our maths curriculum, from EYFS to Y6, is inclusive and that children catch up and keep up through quality first teaching and targeted interventions.

Maths is celebrated at Potten End through parent workshops and class visit sessions to demonstrate how maths is taught in school and to promote the resilience and importance of having a growth-mind-set towards maths. Our whole school Number Day challenges, Maths Week, county maths competitions, use of TT Rock Stars, Maths.co.uk and STEM workshops across the year, help us to celebrate creative, enquiry based maths and encourage more children to take risks in their mathematical learning across the curriculum and be prepared for the next step in their lives.