



Mathematics Curriculum Policy (June 2019)

Introduction

At Clarendon we aim to provide a balanced mathematics curriculum that engages and challenges all learners and enables them to develop their mathematical understanding and skills through fluency, reasoning and problem solving. This mastery approach has been developed in line with priorities identified in the School Development Plan and to meet the needs of our children from EYFS to Year 6. This includes the specific teaching of vocabulary and the use of open questioning to allow children to verbalise their mathematical thinking and deepen their understanding.

We believe that by providing real life contexts and opportunities to apply our mathematics in a variety of ways, we are enabling our children to develop fundamental skills which can be used throughout their lives.

Intent

- To provide a broad and balanced mastery curriculum.
- To embed concrete, pictorial and abstract approach across all three key stages.
- To ensure all learners are challenged through reasoning and problem solving.
- To keep all children broadly in line at age related expectations, ensuring that gaps in knowledge and understanding are filled whilst also providing all children with greater depth opportunities.
- To promote enjoyment through exploration, investigation and discussion.
- To develop children's confidence and competence with number sense and fluency.
- To improve children's recall of multiplication tables and corresponding division facts.
- To increase children's mathematical vocabulary and verbal reasoning, and provide reading opportunities in mathematics lessons.
- To ensure all children can use a variety of representations to demonstrate their understanding in different ways.
- To enable all teachers to confidently deliver a mastery curriculum.
- To make cross curricular links with other subjects through a STEM approach.
- To develop Home/School links to enable parents to support children with their Mathematics.

Implementation

A Mastery curriculum has been developed which ensures that the National Curriculum is covered fully in every year group. This includes detailed Medium Term Planning which breaks down objectives into smaller steps and ensures that each area of mathematics is taught for a longer period of time to ensure that learning is both progressive and to a deeper level. These Medium Term plans also include tiered vocabulary to be taught through each domain. Time is allocated within each week for teachers to close gaps in understanding and focus on specific individual targets. Lesson plans are broken down further based on the needs of the children. This includes a recap session to embed and consolidate prior learning, a hook to enable children to reason verbally and investigate maths in a concrete way and supported practise questions that enable children to be exposed to a range of representations. It is expected that all children will access fluency, reasoning and problem solving in all lessons as well as opportunities for greater depth.

A concrete, pictorial, abstract approach (CPA) is embedded across all areas of mathematics to allow children to fully understand their mathematics. This provides all children with the opportunity to explore and investigate their mathematics in a practical way before moving on to more formal written methods. The Models and Images Document and Calculation Policy clearly outline the order in which these will be taught including examples of pictorial representation to be used consistently throughout School. Mathematics Toolkits are also available in each class containing manipulatives which can be used support the CPA approach and new teaching and learning resources introduced to support teachers with planning.

Daily fluency expectations have been embedded to promote mental calculation and improve rapid recall. Children complete a question from all 4 operations each day and a multiplication recall grid and arithmetic test weekly. Throughout school multiplication is tracked through a whole school initiative "Multiplication Masters" and multiplication is practiced regularly at school and home using Times Table Rockstars.

All staff have received extensive training on the implementation of the Maths Mastery Approach by both the Maths Hub and Curriculum Lead. Existing and new staff continue to be supported by the Maths Curriculum group as mastery is embedded and developed further through Peer Coaching, Team Teaching, new staff induction, supported planning sessions and INSET based on future needs.

Mathematics is monitored and moderated regularly by the Maths Team through triangulation of books, planning and assessment data. Curriculum coverage, quality of work, challenge, marking and target setting are also addressed at this time to ensure standards are consistent and maintained. Learning walks are regularly carried out to ensure classroom environments support children's learning in Mathematics. Evidence of fluency, reasoning and problem solving is identified during the monitoring of books and learning journeys and should be clearly evidenced on each class's working wall. Each class also uses the Local Authority Exemplification Documents and the Interim Standards (Y2/6) to ensure consistency in secure judgements. Pupil voice is conducted to enable children to discuss their mathematical learning and to identify the skills which they have acquired and the knowledge they have remembered. Data is analysed half termly to ascertain progress and age-related attainment for all children including vulnerable groups. This is then discussed at progress meetings and next steps identified for all learners in mathematics.

The mathematics marking policy has been implemented to ensure that all children are effectively challenged based on the progress made within the lesson. This may include an opportunity to apply learning in a different context or a question posed that allows the children to think more deeply by explaining, clarifying or proving their mathematics. If a child has found parts of the lesson difficult, then the work should be scaffolded by the teacher either through written or verbal feedback. A check stamp should also be given so that children can then revisit or practice skills.

Many of the skills taught in Mathematics are also practiced and applied through STEM learning in other curriculum areas. This includes mathematical learning through computing experiences, using knowledge of measures and statistics in Science lessons and engineering investigations planned throughout the year which link to domains taught in each year group. During our annual Enterprise Week children are encouraged to independently apply their STEM learning whilst developing key life skills.

Impact

Our mathematics curriculum is both broad and deep. More children are being successfully kept together through the mastery approach and gap filling within lessons. Challenge is evident in all lessons through a deeper for longer approach and greater depth in all lessons. A CPA approach is followed effectively and consistently through school. This will ultimately result in more children achieving age related expectations, making expected progress each year and reduce gaps for vulnerable groups. Evidence of this can be easily seen through children's books, target setting, progress tests and moderation.

Our children have become confident mathematicians who can verbally explain their mathematics and prove their understanding in a variety of ways. They are able to tackle a wide range of problems that require them to grapple with their mathematics and find possible solutions. They have become effective mental calculators who can quickly recall facts and demonstrate that they can fluently apply this to other areas of their mathematics.

Our teachers have grown in confidence with the teaching of mathematics and have a good understanding of how to plan lessons which promote the mastery approach. They know how to ask probing questions, model new concepts through concrete, pictorial and abstract examples and are skilled in facilitating children's learning through spoken and written interactions. They understand the importance of exploring misconceptions and deepening children's mathematical understanding. Throughout school the teaching of mathematics has been deemed of a high standard. Teachers are also able to discuss the impact of the mastery approach on individual children and groups of learners and can set realistic next steps to ensure children meet expectations.