

Clockhouse Primary School

The Clockhouse Curriculum



Our Mathematics Curriculum Rationale

What do we want for our children and how will we work together to achieve this?

Maths Vision: We believed we could, so we did!

At Clockhouse Primary School, we recognise the importance of maths within the curriculum and acknowledge the significant benefits to every child's development. Most importantly: problem solving, reasoning, creative thinking, communication and pattern spotting, which are central to achieving success in later life. In addition to the skills that the children are able to develop as a result of engaging with maths, it is vital that the children are given the opportunity to develop their mental and written strategies, allowing them to become fluent and efficient when solving calculations. The well-planned and carefully considered curriculum ensures that the children develop these skills simultaneously to support them with the next stage in their learning and life in modern Britain.

Maths is taught in a unique way at Clockhouse Primary School. The Challenge Approach was introduced in 2015 with the fundamental goal of challenging all children and thus ensuring that their progress is maximised and accelerated. The children are given the time to develop their understanding of a given concept over a week, which allows all children to make progress from their starting point within each lesson and over time. Through the use of effective and accurate assessment, including written feedback, teachers are able to reshape the learning throughout the week to ensure all children progress. In addition, children are able to consolidate their learning and apply what they have learnt to new challenging problems and situations.

The approach ensures that the children are progressing at their own rate through accessing learning that is appropriate to their ability. If children demonstrate their understanding of a concept they are able to move through the challenges at the appropriate pace. Challenges provide opportunities for the children to apply their knowledge and the challenges are progressive to ensure that the children not only become secure with the specific concept but then are able to deepen their understanding through more challenging, complex tasks which require the children to think deeply about their learning and explain their understanding and reasoning, thus developing their problem solving and communication skills further.

What are we trying to achieve through the Clockhouse Maths Curriculum? (*Intent*)

At Clockhouse Primary School all we do is underpinned by our values. These values support our 'Key Curriculum Drivers'. Our drivers are used to ensure all stakeholders know what we want for our children – our intent:

- **Challenge** – As the name suggests, the challenge approach provides ongoing and increasingly complex challenge for all children regardless of their ability, whilst not moving onto the next year's curriculum. The fundamental principles behind the approach ensures that there is no ceiling on the learning as children are continually challenged and are able to progress onto increasingly stimulating learning throughout every lesson and over time.
- **Global Citizenship**- The children are provided with opportunities to engage in 'real life' maths. This allows the children to see the purpose of the subject in the wider world. The maths curriculum is delivered to engage all learners and stimulate their curiosity. Throughout each term, every child will be given an investigative style problem that encourages them to think deeply and identify patterns that they can then begin to observe and use to understand maths in the world around them.
- **Creativity** – Creativity in maths is sometimes what is lost due to the pressure to fill the children with the knowledge and skills needed to pass tests, however, at Clockhouse we recognise the importance of creativity in maths. The children are given the opportunity, time, resources and support to explore the limitless possibilities of problems and situations in order to formulate their own answers and solutions. Although it is important for the children to arrive at the correct answer, their approach and journey to the correct (or in some cases incorrect) answer is just as important. We encourage the children to adopt a 'trial and improvement' approach, where appropriate, so that they are able to learn from the incorrect

answers or solutions suggested. The skills that they develop as a result are what they are able to transfer to future learning and real life situations, not the answers themselves!

- **Aspiration** – Unfortunately, it is sometimes the case that children (and their parents) have a fear of maths - often a fear of not getting the answer correct. At Clockhouse Primary School, we encourage the children to recognise the value of making mistakes and using this as a learning opportunity to progress further than they thought possible. The Challenge Approach itself thrives on mistakes as this allows for misconceptions to be effectively and often immediately addressed so the children are able to progress and, more importantly, develop confidence in their ability to learn. The maths curriculum is effectively planned to ensure that it is engaging for all and children recognise the importance of maths, including how what they learn is vital for their future life. This moves beyond the literal as not all children will progress to be mathematicians, accountants or shop assistants that need to calculate amounts in their heads, but all children require the skills that are built throughout their time at Clockhouse, including problem solving and reasoning. This will ensure that they are well-equipped for today's ever-changing society.
- **Well-being** – The Challenge Approach to maths enables all children to make progress from their starting point within each lesson and overtime. This allows the children to develop confidence in their own ability and builds their self-esteem as they all achieve a level of success through well planned challenges that are differentiated and suited to the needs of all children. Pre challenges are created for the children working below age related expectations so that all children are able to access learning at the appropriate level for them. Children's engagement levels in maths are high as the learning is presented in fun, creative ways and pace within lessons ensures children do not have the time to become complacent or display passive learning behaviours. In addition, the nature of the Challenge Approach helps to build the children's resilience as they are given the resources and the appropriate support, as well as time, to develop a secure understanding of the concepts taught. The expectation of the children is high and learning time is maximised so that children are not 'over taught' and children are able to move on to the next challenge once they have demonstrated their understanding.
- **Cultural Capital** – The Maths Curriculum provides the children with the opportunity and skills to develop their fluency to solve a range of calculations using the most efficient method to prepare them for future success. In addition, all children receive sufficient opportunities to develop their problem solving skills through a range of well-planned and well-resourced tasks that can require the children to 'think outside the box' and explain their reasoning behind their approach and solution. This also allows the children to develop their use of mathematical vocabulary through listening to adult modelling, listening to their peers and practising this skill themselves. Cross curricular links are maximised to enable the children to use their mathematical knowledge in different situations and subjects, particularly Computing, where the children are able to access online resources to support and improve their mathematical skills and understanding.

How is the Clockhouse Maths Curriculum delivered? (Implementation)

- The maths curriculum is mapped out by the Maths Leader for each year group to ensure that the order concepts are taught allows children to build upon prior learning and there is a sufficient coverage that meets the requirements of the National Curriculum.
- In Year 1 to Year 6, maths is taught daily. One day a week focuses purely on mental and/or written strategies to develop the children's fluency. There is a specific focus for each week and year groups map the remaining four days out to meet the needs of the children in their cohort. This could be by introducing the concept practically at the beginning of the week and then allowing the children to work through progressive challenges. If the children are revisiting the concept or have demonstrated a strong understanding of the concept in prior learning and teaching, the year group will begin with the challenges and on the final day they will provide all children with the opportunity to apply what they have learnt and develop their problem solving and reasoning skills.
- As a result of the challenge Approach, all lessons are effectively differentiated to meet the needs of all children and, where needed, additional challenges (Pre Challenges) are created for children working below age related expectations.
- Where possible, children are encouraged to self-challenge at the beginning of the week by selecting the challenge they feel is most suited to their understanding. Where this is not possible, teachers will use their knowledge and assessment of the children to allocate them to the most appropriate challenge.

- Children are not expected to complete endless amounts of work to demonstrate their understanding; instead they complete an agreed number of calculations/questions and a 'Star Challenge', which requires the children to apply what they have just learnt, before progressing to the next challenge.
- Assessment for Learning strategies are implemented at the beginning of each lesson, throughout each lesson and after each lesson to reshape the learning taking place within lessons and over time to ensure that learning time is maximised for all as children are given the additional support or challenge they require.
- Children are given the opportunity to revisit key concepts throughout the year through completing 'Mountain Maths' questions each day and the '4 Questions' each week to ensure they are continually recapping on prior learning to consolidate their understanding. Misconceptions and areas of concern are addressed through quality first teaching.
- Moderation is completed regularly within and across year groups and phrases to ensure that assessment judgements are accurate and consistent. Class teachers analyse the progress data for their class and this is collated and analysed for the year group by the YGL. Year groups attend progress meetings with a member of the SLT to discuss the progress and concerns in their class/year group and appropriate actions are agreed to ensure all children make progress and meet their full potential.
- The Maths Leader leads CPD sessions throughout the year to support all staff with the teaching of maths and any member of staff is able to request additional support where required or where this is identified as a need by the Senior Leadership Team. This support could be in the form of support with planning, assessment, modelled lessons and/or team teaching.
- Effective monitoring identified any issues or concerns within the subject, which are addressed through targeted and focused CPD.
- Enrichment weeks, such as Maths Week and Aspirations Week, are carefully planned to provide the children with the opportunity to experience a variety of mathematical experiences and increase their engagement with the subject.
- Year groups maximise opportunities for children to engage with 'real life maths' by making the learning purposeful, including an Enterprise Style week where the children apply their mathematical understanding to make a profit and Aspirations week, where the children learn the key skills for a specific occupation, for example using percentages as an Estate Agent.
- Children are able to access a number of online support resources, including Numbots and Times Tables Rock Stars which has received positive feedback and increased engagement from the children.

What difference is the Clockhouse Maths Curriculum making? (*Impact*)

- All children will make at least good progress from their starting point and an increasing number of children will make accelerated progress.
- Children will leave each year group with a good understanding of the non-negotiables for the curriculum that they have been taught. The non-negotiables are objectives within the curriculum that have been identified by the Subject Leader as fundamental to the children's development within the subject so that they are able to enter the next stage of their learning with the foundations to make continued progress.
- All children leave Clockhouse Primary School with the ability to solve calculations using all four operations, using the method that is the most efficient for their ability and stage in learning.
- The children will have had positive experiences with maths at Primary School and will therefore engage with the subject as they continue their education.
- Children will have the confidence and resilience to persevere when faced with a challenge and as a result will achieve success in their future education.
- Children will be creative thinkers who are able to think outside the box and work effectively as part of a team to solve problems.
- They will be able to communicate effectively with others to explain their understanding and reasoning.
- Pupils will be ready for the next stage in their learning and life in modern Britain.