

St. Clare's **Catholic Primary School**

Mathematics Policy



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The Intent of our Mathematics Curriculum

Mission Statement

St Clare's is a Christ-centred family where everyone is valued and respected. We learn and grow, whilst strengthening our relationship with God and one another. Together in His love, we can achieve our full potential.

Play, learn and grow together with Christ

At St Clare's Catholic Primary School, we want our children to develop a sense of curiosity and enjoyment about Maths. Mathematics is a fundamental part of each day. We believe that Maths teaches us how to make sense of the world around us. We aim to provide children with the skills in order to develop the ability to calculate, to communicate, to reason, and to solve problems. This enables children to explore, understand, and appreciate relationships and patterns in both number and shape in their everyday life.

We deliver a programme of study that meets the requirements of the National Curriculum 2014. In recent years, we have worked closely with the National Centre for Excellence of Maths (NCETM), Lancashire Mathematics Team and White Rose Maths to adopt an approach to the teaching and learning of maths, which is based on the belief that all learners can enjoy and succeed in Maths. We offer progression within fluency, reasoning, and problem-solving and in turn aim for children to become true masters of content, applying and being creative with new knowledge in multiple ways. Work undertaken within the Early Years Foundation Stage is guided by the requirements and recommendations set out in the Early Years Foundation Stage framework and Development Matters.

We give all the children ample opportunity to develop their understanding of mathematics. We aim to do this through varied activities that allow them to use, enjoy, explore, practise and talk confidently about mathematics.

At St Clare's, we want all children to achieve their full potential and give all learners the knowledge and cultural capital they need to succeed. Organising whole school mathematical events such as STEM Week and World Maths Day and additional workshops, provide opportunities for children to develop their cultural capital, and support our efforts to diminish the disparity between different groups.

At Saint Clare's Catholic Primary School we aim to:

- develop a positive attitude to mathematics as an interesting and attractive subject in which all children gain success and pleasure;
- develop mathematical understanding through systematic direct teaching of appropriate learning objectives;
- encourage the effective use of mathematics as a tool in a wide range of activities within school and, subsequently, adult life;
- develop an ability in the children to express themselves fluently, to talk about the subject with assurance, using correct mathematical language and vocabulary;
- develop an appreciation of relationships within mathematics;
- develop ability to think clearly and logically with independence of thought and flexibility of mind;
- develop an appreciation of creative aspects of mathematics and awareness of its aesthetic appeal;
- develop mathematical skills and knowledge and quick recall of basic facts
- ensure children are fully prepared for national assessments by sitting low stakes tests, which will not only increase knowledge retention, but also improve pupils' confidence in maths.

The Implementation of our Mathematics Curriculum

At Saint Clare's we have tried to combine the best of both 'mastery' and 'spiral' approaches in our curriculum. Our curriculum, follows many of the mastery principles:

- Spending longer on topics to help gain deeper understanding.
- Making connections (across units of work, across year groups, across subjects, etc).
- Working together in class on the same topic.
- A fundamental belief that, through effort, all pupils are capable of understanding, doing and improving at mathematics.

However, we also realise that just spending a good chunk of time on a topic doesn't mean that all pupils will 'master' it the first time they see it, and that they need to see it again and again in different contexts and in different years to help them truly develop their understanding on their journey to mastery, so we have built in the revisiting and reinforcing features of a spiral curricula too.

Throughout the school, we have high expectations of all our pupils. Therefore, we consistently endeavour to make the mathematics curriculum accessible to all pupils: moving them through the content of the programme of study at broadly the same pace. All children need a deep understanding of the mathematics they are learning in order that future learning is built upon firm foundations. As a result, there are aspects of teaching for mastery of mathematics which will be seen in every mathematics lesson at Saint Clare's:

- **Positive Attitudes** – A positive attitude and sense of excitement towards mathematics.
- **Modelling** – Modelling knowledge and skills needed to solve problems/questions.
- **Retrieval of Knowledge** – Knowledge from previous lessons, terms and years being built upon.
- **Questioning** – Adults use skilful questioning to reveal, probe and address misconceptions.
- **Feedback** – Adults support children to make effective progress by providing relevant, timely and constructive feedback.
- **C-P-A Approach** – Children learn through enquiry and experiment using concrete materials, represent their mathematical ideas through images and follow a clear progression towards recording abstractly.
- **Representations** – Children learn to use multiple representations.
- **Progression** – Tasks are progressive and provide opportunities for all learners to achieve the learning objective. Tasks incorporate a range of fluency, reasoning and problem-solving.
- **Oracy** – Communication, using precise mathematical language, is consistently modelled, expected and supported.
- **Calculation Methods** – Fluency and flexibility in calculation methods are modelled, expected and supported.
- **Challenge for all** – All children are challenged appropriate to their level. The children relish a challenge.
- **Scaffolding** – Scaffolding is provided for children when required.
- **Independence** – Independence is encouraged from all children and mistakes are seen as part of the learning process.
- **Interventions** – Both pre and post teaching opportunities are used where necessary in order to promote all children towards being active and influential participants of the learning. In addition to this, responsive and planned for intervention are in place to help children keep up as well as catch up.
- **Assessment** – Purposeful and rigorous ongoing assessment identifies both mathematical concepts and children for additional support. Teachers and Teaching assistants live mark so children have automatic feedback and misconceptions can be addressed straight away.
- **Curriculum Links** - Key mathematical skills and knowledge are taught in the daily lesson and every effort is made to link mathematics with other areas of the curriculum. Mathematical possibilities are identified across the links between mathematics and other curricular work are made so children see that mathematics is not an isolated subject.

We use a variety of teaching styles to cater for the different learning styles of pupils in mathematics lessons. Our principle aim is to develop children's knowledge, skills and understanding in mathematics.

Lessons are taught daily, balancing whole class work, group teaching, practical tasks, and individual practice to encourage mathematical talk, support, and independence. We do not view maths as a lesson but as a journey; each day the children build on what they learned the previous day. This allows children to develop a conceptual understanding of the maths they are learning. Children have the opportunity to use a wide range of resources such as number lines, number squares, digit cards and small apparatus to support their work. The school's use of Lancashire's Learning Excellence Mathematics plans, White Rose Scheme, National Centre for Excellence on the Teaching of Mathematics and Maths No Problem ensure Using and Applying in mathematics is integrated into planning and teaching.

Maths vocabulary is used in the correct way in order to develop children's knowledge. Children are encouraged to use the correct mathematical language and terminology to discuss their mathematics and to explain their reasoning. We use teaching assistants to provide appropriate support to individuals or to groups of pupils. Teaching assistants within St. Clare's Catholic Primary School are viewed as an important 'asset' to the school and, as such, are appropriately involved in the planning and delivery of the mathematics curriculum.

In order to advance individual children's maths skills in school and at home, we utilise Purple Mash and Online games for multiplication practice, application, and consolidation. In both KS1 and KS2, maths homework is set weekly.

Teachers' subject knowledge is developed through regular CPD and senior leaders provide effective support for teachers and support staff who need additional development. We continuously strive to better ourselves and frequently share ideas and things that have been particularly effective.

Early Mathematics

The Mathematics curriculum in the Early Years Foundation Stage at Saint Clare's is designed to lay strong, relevant foundations of number, spatial reasoning, pattern and connection. At St Clare's, learning and development in maths is implemented through planned, purposeful play and through a mix of adult and child-initiated activities. We are advised by the children's starting points and guided by 'Development Matters' and 'Birth to Three' documentation in order to achieve the early learning goals.

There are six key areas of early mathematics learning, which collectively provide a platform for everything children will encounter as they progress through their maths learning at primary school, and beyond.

- **Cardinality and Counting** - Understanding that the cardinal value of a number refers to the quantity, or 'howmanyness' of things it represents.
- **Comparison** - Understanding that comparing numbers involves knowing which numbers are worth more or less than each other.
- **Composition** - Understanding that one number can be made up from (composed from) two or more smaller numbers.
- **Pattern** - Looking for and finding patterns helps children notice and understand mathematical relationships with numbers and visual pattern. Learning about pattern and connections supports children to make their own predictions and form logical connections for further mathematical thinking and reasoning.
- **Shape and Spatial reasoning** - Understanding what happens when shapes move, or combine with other shapes, helps develop wider mathematical thinking. This area of mathematical thinking enables children to understand, move and navigate in the physical world around them.
- **Measures** - Comparing different aspects such as time, length, weight and volume, as a preliminary to using units to compare later.

To help develop a life-long love of mathematics, we utilise the following:

- A multi-sensory approach to learning.
- High-quality daily interactions with adults.
- Daily math's sessions relevant to individual and group needs.
- Interventions for those working below age related expectations.
- Opportunities to explore mathematics through continuous-provision and outdoor learning.
- Enthusiastic staff who share a love of mathematics with the children.

Assessment & Target Setting

"Assessment for learning (AFL) is the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to get to and how best to get there."

Assessment Reform Group

At St. Clare's Catholic Primary School, we recognise that AFL lies at the heart of promoting learning and in raising standards of attainment. We further recognise that effective AFL depends crucially on actually using the information gained.

The assessment procedures within our school encompass:

- Making ongoing informal assessments and responding appropriately to pupils during 'day-to-day' teaching. These 'immediate' responses are verbal as well as recorded in the immediate intervention file, which is used by all adults working within the classroom.
- Using knowledge of pupils drawn from ongoing pupil tracking records and with continual reference to key learning and objectives for the relevant year group.
- Adjusting planning and teaching within units in response to pupils' performance.
- Use of information gained from termly tests (both statutory and optional). Analysis is done at both a quantitative and qualitative level. Information gained is used to track the progress and attainment of individual children, groups of children and whole classes. The data is analysed so that mathematical areas of strength and areas for development are highlighted. This enables teachers to amend plans and focus future learning as necessary. The progress achieved by different groups of children, across the school, is also tracked and compared with other groups eg progress and attainment of boys compared to the achievements of the girls; progress of those children with English as an additional language; progress of children with Special Educational Needs or those identified as Gifted and Talented. Children's individual progress is also monitored, using our tracking programme, and discussed at pupil progress meetings. Teachers then use this data to set challenging, yet achievable, targets and ensure appropriate intervention where necessary.
- Results obtained in mathematics at the end of Key Stage One (Optional) and Key Stage Two (Statutory) are compared to results achieved nationally and to those of similar primary schools.
- Termly Pupil Progress meetings take place with the Senior Leadership team where targets are set and next steps identified.

Special Educational Needs and Disabilities

At St. Clare's Catholic Primary School, we aim to provide a broad and balanced education to all pupils. Quality First Teaching is considered an entitlement for all pupils. Effective pupil tracking enables identification of pupils who may benefit from early 'intervention' at an appropriate level. Within the daily mathematics lesson, all children are seen as able to succeed with maths and are given equal opportunities to do so. Children with SEND are taught within the daily mathematics lesson and are part of the lesson with all of the children, apart from where extreme circumstances

show that it is better for small groups and 1 to 1 teaching. Where applicable, children's IEPs incorporate suitable objectives from the Revised Primary Framework and teachers keep these objectives in mind when planning work.

Times Tables

At Saint Clare's Catholic Primary School, we believe that through a variety of interactive, visual and engaging techniques, all children can achieve the full multiplication tables knowledge by the time they leave Primary School. The National Curriculum (2014) states that by the end of year 4, pupils should be able to recall multiplication and division facts for multiplication tables up to 12x12. Children in Year 4 are also required to take a multiplication tables check (MTC) in the Summer Term. The purpose of the check is to determine whether pupils can fluently recall their times tables up to 12, which is essential for future success in mathematics. This means it is important for the children to learn their multiplication tables facts and to be able to recall them quickly and accurately.

We teach times tables using the following progression:

- Year 1 – Be able to count in multiples of twos, fives and tens
- Year 2 – 2x, 5x, 10x, 3x
- Year 3 – 4x, 8x, 6x
- Year 4 – 7x, 9x, 11x, 12x
- Year 5/6 - further consolidation of all tables including 'mega' facts (6×80 ; 7×900 ; 400×6) and 'mini' facts (0.5×8 ; 3×0.03 ; 0.009×8)

Reporting to Parents

- Parents are able to speak to class teachers after school about any advice that they may need in order to support their child at home.
- Parents are given the opportunity to discuss their child's progress on two separate occasions at Parent's Consultation Meetings and once in the summer in the form of a drop-in session. We also send out a report at the end of each term.
- We hold termly meet the teacher meetings, to discuss the curriculum for that term as well as produce half termly overviews which highlight the key skills to be studied.
- In the Autumn term we hold a maths workshop with the parents where they have the opportunity to gain an understanding of teaching methods and strategies that we use in school.
- We have a school website and maths blog which promote the school's achievements as well as providing information and communication between the school, parents and the local community.
- We also have a school X (twitter), Instagram and Facebook account as well as Arbor App to keep parents up to date.

The Impact of our Mathematics Curriculum

The impact of our mathematics curriculum is that:

- Children understand the relevance and importance of what they are learning in relation to real world concepts.
- Children know that maths is a vital life skill that they will rely on in many areas of their daily life.

- Children have a positive view of maths due to learning in an environment where maths is promoted as being an exciting and enjoyable subject in which they can investigate and ask questions; they know that it is reasonable to make mistakes because this can strengthen their learning through the journey to finding an answer.
- Children have the confidence and resilience to 'have a go' and choose the equipment they need to help them to learn along with the strategies they think are best suited to each problem.

Our children have a good understanding of their strengths and targets for development in maths and what they need to do to improve. Our maths books evidence work of a high standard of which children clearly take pride; the components of the teaching sequences demonstrate good coverage of fluency, reasoning and problem solving. Our feedback and interventions support children to strive to be the best mathematicians they can be, ensuring a high proportion of children are on track or above. Our school standards are high, we moderate our books both internally and externally and children are achieving well.