HOLY NAME CATHOLIC PRIMARY SCHOOL

Maths Policy

October 2022

Agreed by the Governing Body on	October 2022
Person Responsible	Mathematics Subject Leaders

Maths Policy

INTENT

"Education is not the learning of facts, but the training of the mind to think." Albert Einstein.

At Holy Name we believe that Mathematics has to be interwoven in every area of our school day. Our children should realise how vital numeracy and mathematics are for a successful future and it is our aim that every child leaves Holy Name with skills in Numeracy that will prepare them for life. We have an emphasis on basic skills and ensure that these skills are refined daily. Every member of staff places a high priority on raising the profile of maths throughout the school and will provide opportunities wherever possible for the children to use, develop and explain their mathematical thinking. We encourage them to find answers and solutions in many different ways and promote reasoning skills constantly.

"Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject." National Curriculum updated 2021

Holy Name's maths curriculum intends to ensure that all children are well prepared for the next stage of their education and for futures post-16. We want to ensure teaching is consistent; making all lessons at least good with many outstanding, so that every pupil receives a good mathematics education. Our ambition is that 100% of children will achieve age related expectations or above at the end of Key Stage 1 and 2. We aim for all of our children to be strong mathematicians so they:

- have a strong conceptual understanding of maths; its structures and its relationships
- can recall and apply their knowledge confidently and efficiently
- are secure in using written methods for which they have a clear understanding.

We aim to place problem solving, reasoning and fluency at the heart of our mathematics teaching. We recognise that collaboration and communication are crucial life skills and should be developed in our mathematics teaching.

The expectation is that all children welcome challenge and that teachers foster the attitude that we all, even the most able among us, should expect to struggle at times.

Through careful assessment, planning and preparation we aim to ensure that all children progress when they are ready, having mastered the curriculum as they go. New knowledge and skills should be secured before children move on to the next stage of development. For those pupils who grasp new material quickly, they should apply this to rich fluency and reasoning through problem solving tasks.

Maths Policy

TEACHING AND LEARNING

All teaching must be at least good and in many cases outstanding. Underpinning all good or outstanding teaching in mathematics is the expertise and sound subject knowledge of the staff. Clear policies and regular professional development from a range of sources will develop the expertise of staff to help:

- in delivering the school's curriculum thoroughly and consistently, providing immediate feedback
- in enhancing staff subject knowledge
- in weaving mathematical ideas into a coherent whole
- in choosing practical resources, visual images and information and communication technology that promote inclusive teaching and a deeper understanding for all. Reinforcing opportunities daily to practise mathematical task focussing on concrete, pictoral and abstract.
- in using good Assessment for Learning techniques and by adopting Rosenshine's Principles of Instruction we review prior learning, present new information in small steps, ask questions, provide models, guide student practice, check understanding, obtain high success rate, provide scaffolds for difficult tasks, allow time for independent practice and have weekly and monthly reviews of learning. Children also use Thinking Moves in lessons to improve retention of knowledge.

INCLUSION

The following principles inform and guide our policy and practise:

- meeting the diverse and complex needs of each and every individual is embedded in everything that we do as a whole staff
- it is the responsibility of the school to enable the child to access and make progress through the curriculum
- equal opportunities is not the same as equal provision

Above all we celebrate and affirm the diversity in our school, our community, our society, and our world and commit ourselves to enabling all our pupils to participate constructively as they grow.

For every child to be able to participate we must know each of them as individuals. For children with SEND, teaching must be closely linked to One Page Profiles. What is good provision for a child with SEN is good for all children i.e., an abundance of activities that allow children to learn visually, through speaking and listening and kinaesthetically.

We respond to children's diverse learning needs by:

- creating effective learning environments
- securing their motivation and concentration
- providing equality of opportunity through a range of teaching approaches and modifying these for individual needs
- using appropriate assessments (including end of unit White Rose assessments, NFER, Target Tracker, response to immediate marking and ongoing daily assessments)

- setting targets for learning including half termly KIRF (Key Instant Recall Facts)

- teaching more able children with their own class and extending their learning through deeper understanding work, extra challenges and opportunities for independent learning. They will also enjoy the extension and support of a specific Maths Ambassador from Year Six.

CURRICULUM

EYFS

Nursery

Children in Nursery will be taught maths through delivery of the mathematics area of learning in the Early Years Foundation Stage framework. The teaching of maths in the EYFS involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shapes, spaces, and measures. Children will develop their understanding through planned, purposeful play and through a mix of adult-led and child-initiated activity. The teachers in the Early Years use Master the Curriculum for their focused maths sessions and guided group work. There are opportunities to undertake maths activities within continuous provision/outdoor play and enhancements linked to the current learning. It is expected that the vast majority of children in Nursery will be taught maths in mixed ability groups, with the whole cohort working towards the expected outcomes at the same pace. Pupils who grasp concepts rapidly will be challenged through having access to a wider variety of problems, whilst those children who are not sufficiently fluent in their understanding will be given opportunities to further develop their understanding before moving on.

In Reception, the long term plan has been devised using the White Rose Maths scheme for learning. This has also been cross referenced with White Rose Maths as this is the content coverage that is used from years 1- 6. Development Matters and the NCETM typical progression charts have been used to ensure small steps are made which will enable our children to have a deeper understanding to maths.

Reception

Maths is taught every day through adult led, small group focused activities both inside and outside of the classroom. During small group work sessions, previous learning will be revisited and new concepts introduced. Where possible links are made to other areas within the curriculum to make learning relevant and meaningful. During these sessions there is a different focus to ensure that existing skills are revisited frequently to help children retain their knowledge. It also supports filling gaps in knowledge that have been identified previously. Groups are mixed ability so that adults are able to assist children who require further support and give other children the chance to dvelop their independence. Children are also able to practice their maths skills throughout our classroom and outdoor provision independently within continuous provision.

Mathematics is also taught beyond allocated Mathematics sessions. Independent Mathematics activities are provided to consolidate the adult led session so children can demonstrate their learning using different resources. Adults are able to make observations and move the leaning on through questioning, address misconceptions etc.

We also use NCETM, Mastering Number intervention for 15 minutes every afternoon.

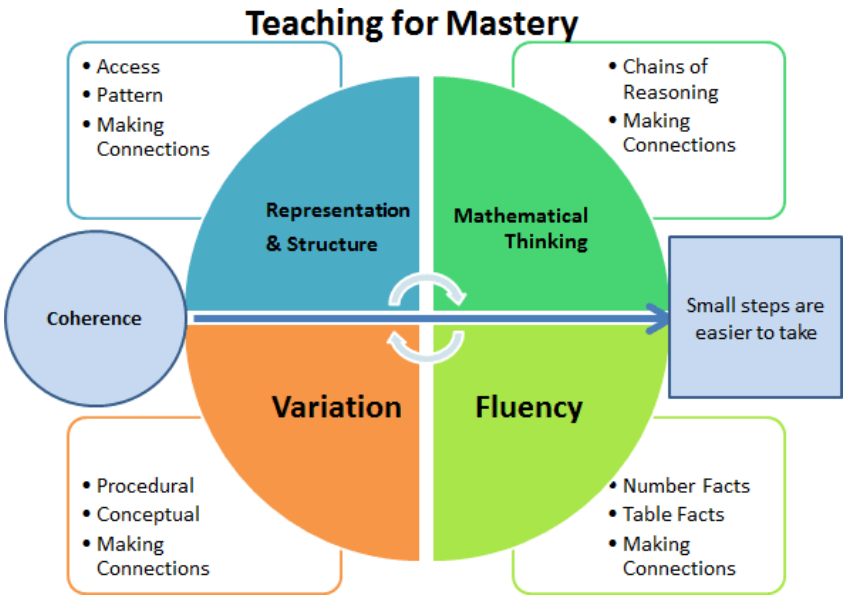
Maths Policy

The school works to the expectations set out in the framework document for the national curriculum in England, July 2013 for Years 1 to 6 and the Early Years Foundation Stage Curriculum, 2012. We do not follow a scheme of work as a whole, we use White Rose Maths to provide coverage of the curriculum and to scaffold for more individualised planning. This is tailored to meet the individual needs of each cohort and to fulfil our ambition for the children by the time they leave us. They also have ready to progress indicators and small steps for those children have difficulty understanding individual learning intentions. We introduced a whole school mastery approach to the teaching of maths in September 2018 and this is the result of many months of research with neighbouring schools. We also use NCETM, NRICH, Mastering the Curriculum, TES, My Mini Maths, Maths Drills, Classroom secrets and more.

The school's curriculum places an emphasis on rich, applied mathematical tasks which allow the children many opportunities to persevere with problem solving and allows the opportunities to reason about mathematics. While some maths needs to be taught discretely, there is an emphasis on giving the maths a context so there is purpose for learning. Using the school environment and the wider world, the curriculum ensures children explore, make connections, seek patterns, recognise relationships and are creative with mathematics. A good understanding of place value and key

number facts is extremely important. Therefore we encourage use of a wide range of practical, concrete equipment to support this conceptual development including Numicon, Base Ten, Counting Sticks, Cuisenaire Rods, number lines, one hundred squares, array boards, bar models and much more. We are also developing a whole school approach to using bar models in class to support the child and their Mathematical reasoning. We have invested money into replenishing resources and are continually raising additional funds to add more resources to our Maths resources.

Throughout all stages, children play with numbers, measures, shapes and patterns to develop numerical awareness and explore the idea of 'proof.' We promote mathematical games that involve point scoring and personal bests (both electronic, and 'hands on') as we know that if managed properly, this is highly motivating. See also our Calculation Policy

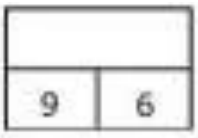


(NCETM https://www.ncetm.org.uk/resources/49450)

Teaching for Mastery is under pinned by four areas, these include:

- Representation and Structure
- Mathematical Thinking
- Variation
- Fluency

Representation and Structure focuses on how concepts in Mathematics are presented in different ways and forms for example when adding 2 numbers together it could be presented in many different ways:



Bar Model Representation

Part/Whole Model Representation

9 + 6 =____

Number Sentence Representation

Nine ones and 5 tens

Place Value Representation

At Holy Name we believe that it is important to expose children to many different representations and structures. This will enable a child to demonstrate mastery in a particular area of Mathematics if they are able to apply this within a range of different situations.

Mathematical Thinking requires children to be able to work through problems systematically rather than through `trial and error`. Children should be able to look for patterns and relationships and make connections. Children are able to demonstrate their mathematical thinking by explaining their methods and thought process when solving a mathematical problem.

Fluency is split into two areas:

- Procedural fluency
- Conceptual fluency

Procedural fluency is the ability to apply procedures accurately, efficiently, and flexibly; to transfer procedures to different problems and contexts; to build or modify procedures from other procedures; and to recognise when one strategy or procedure is more appropriate to apply than another.

Conceptual understanding is knowing the procedural steps to solving a problem and understanding why those algorithms and approaches work. This level of understanding has students reaching higher depths of knowledge because they are making connections from one skill to another.

Fluency relies on the quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of Mathematics.

Variation is also split into two areas like fluency:

- **Procedural variation**
- **Conceptual variation**

Procedural variation – This is a deliberate change in the type of examples used and questions set, to draw attention to certain features.

Conceptual variation – When a concept is presented in different ways, to show what a concept is, in all of its different forms.

NCETM (https://www.ncetm.org.uk/resources/50042)

PLANNING

Teachers plan for deep coverage and depth of the school's curriculum through both daily maths lessons and additional opportunities to develop mental maths skills.

Plans for daily maths lesson include teaching, practising, applying, and reviewing and cater for all learning styles (visual, aural and kinaesthetic). Children's targets are at the forefront of all planning and are clearly linked to and reviewed through regular assessment and analysis and pupil progress meetings.

As we have split classes (Y1&2, Y3&4 and Y5&6) we have had to try and incorporate two years objectives in the one lesson. This was proving to not be as beneficial as it should be so we have started to use the old schemes for split age classes only. If any other year groups are finding a large proportion of the new WRM schemes then we can temporarily change to the smaller steps to ensure deep understanding before moving on. Each split age is specifically grouped with the more independent younger age group and those from the older year who have struggled with some of the key concepts. This is to allow the older to children to have access to the previous objectives again if they need to, allowing further, more in-depth scaffolding of key objectives.

Lessons include opportunities for

- practical activities and mathematical games
- problem solving
- individual, small group and whole class discussions
- open and closed tasks
- a range of methods of calculating e.g. mental, paper and pencil and calculator
- working with ICT
- outdoor learning (including break time with their Ambassador)

Plans should follow Holy Name's Calculation Policy which gives an overview of the development of addition, subtraction, multiplication and division from Reception to Year 6. Teachers should use this detailed information on progression through each strand and how to use practical resources and models to develop understanding at each stage.

Classes are mixed ability and the groups within classes are fluid. In Year Six setting does take place for both Maths and English with specialised teaching taking place for both subjects. Teachers will use a range of grouping methods when planning. No children miss out on the daily mathematics lesson

for the class as it is crucial they have access to Quality First Teaching. Occasionally, we may stream across cohorts if this is judged to best meet the needs of the children.

See also our Calculation Policy and Homework Policy

RESOURCES

At Holy Name we are eager for children to have as much experience with practical mathematics as possible before transitioning them through to the pictorial stage before becoming confident with the abstract.

Children become fluent in mathematics when they have lots of 'hands on' experiences. Therefore, children and staff draw on a wide range of practical resources in order to develop the conceptual understanding of maths; its structures and its relationships. This then helps children move smoothly to abstract representations and recorded methods. Good use of resources also helps make the learning more interesting. At Holy Name, we believe is presenting opportunities for all of our children to experience concrete, pictoral and abstract representations in their maths curriculum.

ASSESSMENT

All assessment is used to inform teaching and learning. We identify children's understanding and then swiftly focus interventions to overcome misconceptions.

At Holy Name we assess children in six main ways:

- End of unit assessment tests
- assessment for learning: continuous
- marking: daily/weekly – immediate feedback
- end of unit diagnostic testing via questioning which can lead to small group, focussed intervention outside of the daily maths lesson
- half termly pupil progress meetings
- NFER testing each term (Y1-Y6)
- end of Key Stage transitional Assessments: annually

Towards the end of the school year we assess and review pupils' overall progress and attainment using teacher assessment, their class record of attainment against key objectives and supplementary notes and knowledge about children to produce a summative record. Accurate information is then reported to parents and the child's next teacher. End of Key Stage assessments are moderated either with other schools or by the Local Authority.

See also our Feedback policy and Assessment policy.

Teaching Assistants & Higher Level Teaching Assistants

Teaching Assistants are actively involved in supporting and scaffolding within lessons and in providing intervention sessions and small group support. They support all groups in the classroom, enabling the teacher to also work with all groups on a weekly basis. They offer sensitive support and are expected to modify tasks, materials and teaching resources as required. They demonstrate initiative in using practical resources to support learning and help pupils overcome difficulties, for example by using strings of counting beads to aid early multiplication. They are careful not to over-

direct pupils' learning. They spot misconceptions and gaps in learning, take responsibility for assessing pupils in their groups and help to identify the next steps and plan subsequent activities with the class teachers.

They participate in reviewing pupils' progress and are particularly effective in identifying and supporting personal problems that present barriers to learning. They provide immediate feedback in line with our Feedback Policy, in green pen, initialling the work.

USE OF COMPUTING

The role of technology in our mathematics curriculum is to motivate and engage children and support children in analysing and communicating. Calculators should be used throughout the school to promote play, exploration and fun with number. They may also be used at the teacher's discretion for children to check their own work. As a mechanism by which to find the answer, they will only be used with children working at a secure level, where the child has to make a sophisticated decision about the calculation required.

Children also access Doodle Maths and Timestable Rockstars both at home and in school. For those children who struggle to access at home they can attend extra sessions with their Ambassador in school. Some spotlight children also complete daily ''One Minute Maths' sessions

BARRIERS TO LEARNING

At Holy Name we have the highest expectations for all children. We act early to secure the essential knowledge and skills of the least able. In conjunction with the leadership team, staff are encouraged to reflect on why these barriers exist in the first place and can be done to prevent them arising in future.

Where gaps need to be closed for individuals or groups, we run a programme of interventions in the afternoons. The intervention used will depend on the nature of the difficulty for the child / children. However, our principal intervention is Mastering Number from NCETM in Reception, Y1 and Y2 and 1st Class @ Number 1 and 2 for years 3 and 4. The impact of these programmes is monitored and regularly reviewed.

LEADERSHIP

Our KS1 & 2 Maths Subject Leader is also a qualified MaST specialist and must always be an outstanding practitioner in their own right in order to lead by example. We also have a maths EYFS lead who works with the maths lead to ensure great practice in the foundation stage and with transition to tackle barriers and ensure consistency, they are responsible for:

- monitoring teaching and learning through lesson observations, learning walks, pupil voice interviews, book monitoring and pupil progress reviews with Head of School and Executive Head Teacher
- using the information gathered from data analysis to improve teaching and the curriculum
- robustly challenging any weak teaching and identifying what support or development is needed.
- mapping interventions and deploying support staff effectively
- assisting with individual and group target setting and ensure progress against these targets is effectively shared with parents

- preparing and organising INSET as necessary

The Maths Subject Leader must also work in partnership with other members of the leadership team and our governors to raise standards in Mathematics across our school and maintain the high profile of mathematics in the School Improvement Plan. Our Maths Governor Ms Sibert, takes an active role in assessing the progress and monitoring the subject with the subject lead.