



Hoole St. Michael's Church of England Primary School

Mathematics Policy

Member of staff responsible: S Cookson
Date approved by the SEC committee: April 2024
Date to be reviewed: April 2027

Vision Statement:

Christ's love is in everything we do at Hoole St Michael. Our creative and high-reaching Church of England Primary School is safe, loving and supportive. We encourage the building of good relationships and friendship through respect, tolerance and understanding. Within our Christian family, where parents are our partners in all aspects of school life, we aim to inspire a love for learning within each and every child.

***'I can do everything through Christ who strengthens me.'* Philippians 4:13**

Overall Intent of our School:

Achieving excellence within the light of God.

We encourage our children be **bold and courageous** in their learning, willing to **take risks** within a **supportive, caring Christian ethos**. Our **Christian Values** underpin everything we do at Hoole St Michael. Hoole St Michael children develop **confidence, resilience and a thirst for knowledge** to **prepare them for the future**. As a small Christian family, children **build strong relationships**, learn to **work together** and **support each other** through life's celebrations and challenges. **Growth Mindset and Sumo principles** teach our children to approach all areas of learning positively. Our children are **active learners** who thrive when learning outdoors; we provide outdoor learning and Forest School sessions on a weekly basis. Although we are a village school we reach out to develop **meaningful partnerships** within the **local community and wider world**. We provide **enrichment activities** regularly for our children to **broaden their experiences and love of learning**.

1. INTRODUCTION

Mathematics is important in everyday life. It is integral to all aspects of life and with this in mind we endeavour to ensure that children develop a healthy and enthusiastic attitude towards mathematics that will stay with them. This policy outlines what we are aiming to achieve in respect of pupils' mathematical education. It also describes our agreed approach to the planning, delivery and assessment of the mathematics' curriculum.

The National Curriculum (2014) for mathematics describes what must be taught in each key stage. The mathematics taught and the methods used reflect both the statutory requirements and the non-statutory guidance and recommendations outlined in the following documents:

- The Revised Statutory Framework for the EYFS (2012)
- The Development Matters in the EYFS (2012)
- Mathematics Programmes of Study: key stages 1 and 2 National Curriculum in England (2014)
- Mathematics Progression National Curriculum LCC (2014) documentation
- Maths non statutory curriculum guidance written by the DFE and NCETM following the Covid 19 pandemic.

This policy provides information and guidance for staff, governors and other interested persons.

2. AIMS AND OBJECTIVES

We believe that mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. Our pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects. We aim to ensure that all pupils:

- become **fluent and efficient** 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.

Curriculum Intent:

Our maths curriculum is designed with the schools' vision and ethos at the centre. We aim through our bespoke Mathematics curriculum that our children will be 'achieving excellence in the light of God.' Through an environment of Christian love and support, we aim that our children will become confident and independent mathematicians. Using our curriculum driver of Growth Mindset, mistakes in maths are celebrated and used as valuable learning points. By teaching maths with a mastery approach, our children will have deep and broad understanding so because of this be willing to take risks and make informed decisions about their choice of calculation. Staff will be role models of communication in mathematics, teaching the best way to explore and share reasoning. Building on our children's solid cultural capital, maths teaching will be purposeful, not driven by processes but by meaningful and efficient calculating. By rooting learning in mathematics it is these principles will allow our children to shine.

3. Implementation:

What does a mastery approach look like?

Research has shown that splitting the class into groups of learning based on ability causes widens the gap in achievement. Teaching for mastery focuses on the achievement of all pupils with the class working together at broadly the same pace. Some children will work within age related expectations but need more visual representations of questions, other children will move on to a deeper understanding in their learning.

Practical equipment, used at every stage of learning and regardless of ability, plays a vital role in mathematics in our school. Children who see questions practically and with visual representations have a deeper conceptual understanding and this unlocks the mathematics. Each question will be varied slightly each time, making the children think that little bit more and apply their skill in a different way. Because each question is progressive, next steps in learning are automatically built in

through careful question selection. Children are ready for challenge, knowing that each question will stretch their thinking.

During teaching time, children will work in mixed ability groups and share thinking with a partner. Teachers will ask carefully thought-out questions and children will have time to work and feedback. Emphasis will be placed how children have arrived at the answer or how many ways they could arrive at the answer. In this way, children will demonstrate a clear and deep understanding of the concept they have learnt. They will also learn to communicate their thinking in maths clearly and work systematically to arrive at all possibilities.

Across the school, we use the Maths No Problem scheme as the recommended scheme for Maths Mastery to inform our teaching and learning. Each lesson begins with an anchor task and Maths Journals as used for the children to record their understanding of the learning from each lesson. This is also supplemented in Years 1 to 6 by White Rose Maths and NCETM spine materials, whose resources also offer a best practice idea of variation in thinking. During independent work, the teacher will provide questions for the children which have been modelled during the lesson to prompt independent thinking and build confidence. These questions will involve a progression through deep and broad learning by representing questions in a variety of ways. Any problem solving will also have been modelled previously in order for the children to attempt this independently.

Work as part of the Abacus Maths Hub:

We are five years into our Maths Mastery journey. We have worked as part of the Abacus Maths Hub for the past four years and are now a Mastery Sustaining School. We receive regular updates and training as part of the Maths Hub as well as having the opportunity to work with other local schools observe open lessons and share good practice.

Nrich Problem Solving School:

From September 2023, we became an Nrich Problem Solving School. Using training webinars, we are focusing on reasoning and how we can make our children more resilient and effective problem solvers.

EYFS:

At Hoole St Michael CE Primary School, work undertaken within the Foundation Stage is guided by the requirements and recommendations set out in the Revised Statutory Framework for the EYFS (2012) and the Development Matters in the EYFS (2012). 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. During the first two terms, our reception class focus on mathematics for a full morning, two to three times per week (balanced with literacy). Our pupils will use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They will develop their ability to recognise, create and describe patterns. They will explore characteristics of everyday objects and shapes and use mathematical language to describe them. At the end of the foundation stage, our pupils should be able to count reliably with numbers from 1 to 20, place them in order and say which number is one more or one less than a given number. They should be able to use quantities and objects, add and subtract two single-digit

numbers and count on or back to find the answer. They should be able to solve problems, including doubling, halving and sharing.

EYFS are using the White Rose Reception scheme as a basis for their curriculum. The teachers in EYFS plan the maths provision for our Honeybees following this guidance. We also use Welcome to Number Land, which allows the children to explore numbers 1 to 10 in depth and links also to areas such as shape and measure. Problem solving is also built in when some of the characters who live in Number Land swap the pieces of the houses and the children have to put right what has been mixed up.

Years 1 - 6:

From years 1 -6 our children are taught in mixed age classes. To focus the lesson on the curriculum objectives for each individual year group. In Years 1 and 2, the children are taught separately as the gap between learning objectives is wide. One year group will receive their input time whilst the other year group works independently and vice versa. We believe that this allows the teacher to focus on specific learning for that particular year group and learning expectations for all years are clear. In Years 3-4 and Years 5-6, the children are taught together and the younger year group starts their independent activity first in order for the teacher to further the learning for the older year group. Activities are tailored by the teacher and include only questions that have been previously modelled in the lesson.

Maths Journals:

Each lesson revolves around an anchor task – this is a problem that has been specially created to promote the learning intention of the day. The teacher may decide that after the lesson has been taught, the children would benefit from exploring this concept in their Maths Journal, especially if their teaching has involved variation in the procedure of how we can solve the problem. The journal allows children to work freely and show their thinking. Teachers can easily assess the children from the work in their journal and address misconceptions into the following lesson.

Deeper Learning:

At Hoole St Michael, we believe that all children can achieve. During our maths lessons, all children within the class are expected to work towards their age-related expectations. For some children they may be working towards their goal, for others this may achieve their goal and need a further challenge. In each lesson, teachers provide a greater depth, deeper learning challenge that is open to all once the teacher has checked that all children are working at depth within their age group. Checking that our children have a solid depth of knowledge within their age range is vital first, before we accelerate them further. We want to build solid foundations in learning. We use NCETM Mastery assessment materials and materials from Nrich to challenge our thinkers. We are an Nrich Problem Solving School.

Role of adults:

We use teaching assistants to provide appropriate support to individuals or to groups of pupils. Teaching assistants within Hoole St Michael CE 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. Their knowledge, skills and understanding is constantly updated through involvement in school-based and external INSET either through the local authority or through cluster training (TARDIS cluster). Teaching assistants are used to provide immediate feedback to groups of learners or replicate models of calculations on the board at table level. Intervention is conducted as soon as possible that day or as near to the next lesson in order to close gaps quickly.

Working Walls:

Teachers are expected to have a working wall in their classroom that are used to support learning. This is not a permanent display and should be added to as a topic progresses. It should also contain the relevant mathematical vocabulary for a particular topic as well as the small steps learning from White Rose for that unit. It is good practice to encourage the children in class to take ownership of the working wall and through discussion with the class teacher contribute to that where it is appropriate.

4. MATHS CURRICULUM PLANNING

Mathematics is a core subject in the National Curriculum, and we use the Mathematics Programmes of Study: key stages 1 and 2 National Curriculum in England (2014), Maths No Problem and White Rose planning documentation as the basis for implementing the statutory requirements of the programme of study for mathematics. We also plan using the approaches, ideas and resources in Lancashire's Planning Support material, NCETM and Nrich to supplement challenge. The Head Teacher and Mathematics Subject Leader (currently Mrs S Cookson) are responsible for monitoring the mathematics planning within our school.

We carry out curriculum planning mathematics in three phases (long-term, medium-term and short-term).

Long term plans: Maths No Problem gives the teachers clear learning overviews for the year. Teachers are welcome to tweak the topics in order for them to cater for times when individual year groups have different themes.

Medium term plans: Our medium term planning documents in both key stages are then pulled from the areas planned for on the long term plan.

Short term plans: These have been updated to reflect our teaching for mastery approach.

- **Daily Warmer:** *Here we have a focus on: revise, revisit, refresh. During this 10 minute session, teachers should revise learning from the previous session or refresh the children of their prior learning ready to use for the lesson today. Teachers will focus on prerequisite skills to complete the tasks needed today in order for children to see how their learning builds.*

- **Main Teaching / Modelling:** *Using Maths No Problem, White Rose Maths and the NCETM, lessons progress through different variations of the anchor task. This gives children deeper and broader learning. Learning must start with practical equipment to unlock the understanding of the maths. Teachers also model problem solving skills using the objective from the small step. This session involves a lot of partner work and is taught in a ping pong style. Children are asked a discussion question by the teacher and have the opportunity to share mathematical talk. Teachers will also model problem solving in this session. During this session teacher and TA will circulate effectively, listening carefully to the mathematical talk and building on it. Teachers have been trained to use sentence starters to promote talk and STEM sentences that are repeated by the children and enable them to develop and embed key strategies to answer questions.*
- **Independent Work:** *Children will only attempt questions that have been modelled during the session by the teacher. This allows them to work independently, with confidence and embed their knowledge. Each time the child sees a question in a different way they are reasoning. Problem solving will also be included during independent work time and this also will have been modelled by the teacher. Problems can be taken either from White Rose resources, TestBase, Maths No Problem or from the NCETM Progression through Mastery documentation.*
- **Assessment:** *We plan questions during the plenary session to ensure that all our children have reached the depth marker for their year group. These questions are most often taken from NCETM Mastery guidelines which are tailored per year group. As teachers and TAs circulate effectively during the lesson, staff are able to assess as children work and correct any misconceptions or slips. These observations and conversations will inform future planning.*

5. ASSESSMENT

Teachers assess the children in school on a daily basis. Both the main maths lesson and the daily fluency sessions are planned in such a way that the teacher and teaching assistant circulate effectively, assess learning and amend future planning accordingly. This is the basis of daily maths teaching within our school, allowing staff to address misconceptions early, pinpoint gaps and plan to accelerate progress if needed. Tests are taken at the end of each unit of work and teachers undertake an exam analysis of the performance of the class. This is used to inform future fluency sessions and lesson content. Other tests are conducted just before Christmas, Easter and in summer, to inform teacher assessments and to share with parents. These are taken from White Rose or Testbase.

Assessment Guidance and Support for Teachers:

The school supports teacher assessment through the use of Lancashire's KLIPS (Key learning indicators of progress) materials and the Mathematics Progression National Curriculum LCC (2014) documentation. KLIPS provide an aid to our teachers when making summative judgements. As Lancashire KLIPs are aligned to the national curriculum, they are also used to help us consider wider issues such as appropriate pitch. In addition, they provide a touch stone for reference when we take part in our own internal and external moderation activities, for example local cluster moderation, through TARDIS.

Teachers are also provided with End of Block assessments from White Rose to assess progress at the teaching of that unit. We also know that best practice is to use similar questions from the test during the teaching of the unit to allow children to see another variation of the question. NCETM also provide mastery progression questions to assess children both working at age –related and

greater depth. Teachers also have access to Testbase which has questions tailored both the theme and year group.

The assessment procedures within our school encompass:

- Making ongoing assessments and responding appropriately to pupils during 'day-to-day' teaching. These 'immediate' responses are mainly verbal and are not normally recorded. Teaching assistants play a crucial role in this giving immediate feedback and immediate intervention where possible.
- Using knowledge of pupils drawn from ongoing pupil tracking records and the progression document to inform 'prior learning' at the beginning of each unit of work to guide our planning and teaching. White Rose gives clear guidelines at the start of each small step within the unit as to where the learning should be building on from. Teachers are to use this, as well as their knowledge of the children to plan lessons.
- Adjusting planning and teaching within units in response to pupils' performance;
- Use of ongoing teacher assessment through the KLIPS grids in order to identify gaps in attainment on a half termly basis and at the end of each full term using this information to assess a child's attainment against year group expectations, using the 'working towards', 'expected' and 'greater depth' judgements. Using DFE Ready to Progress Criteria and the Lancashire LAPS to identify gaps quickly and work to accelerate learning to close it.
- NCETM questions for mastery provide teachers with a clear idea of what working at age-related and above age-related looks like. Use of Ready to Progress Criteria and Lancashire LAPS to identify gaps and ensure solid foundations.
- Use of information gained from statutory and optional tests as well as end of block assessments or end of chapter reviews. Analysis is done at both a quantitative and qualitative level. Information gained is used to set focused curricular targets (what to teach) and also to determine which strategies or methods are particularly effective in respect of specific areas of mathematics (the how and why).

Marking and Feedback:

Where it is possible, marking will be done during the lesson by the class teacher or teaching assistant. This is done with the child in order to spot any misconceptions and to assess their understanding. Staff have been made aware through recent training of the difference between a slip and a misconception.

Slips are marked with a dot in pink as the child has lost concentration for a second and needs to go back and correct. Minimal adult help is needed to do this.

Misconceptions are misunderstandings and will need adult time and guidance to be put right. This may involve a small re-teach or the use of practical equipment to unlock understanding. Once corrected, misconceptions are marked with a 'int' in a circle to show that the teacher has intervened and from there the child has now grasped the learning. .

Next steps marking is not used during the maths session as each lesson is progressive, the next step in teaching is the next day. Children are given time to correct any slips the next day at the start of the lesson if they need to. Teachers may also address a whole class misconception the next day.

The code VF is used by the child to show if a staff member has spoken to them about their work.

Daily Fluency Sessions:

It is considered best practice to have a daily fluency session built into the school day. This takes place at 9am across school, for fifteen minutes outside the main maths lesson and concentrates on the recall of key facts that the children need in order to calculate efficiently. These sessions are planned for by the class teacher and may address the needs of the group in terms of gaps in learning, they may address the Ready to Progress Criteria or follow our progressions in mental calculating. Children are encouraged to work quickly and build on their knowledge, seeing patterns and making connections. NCETM have released recent documentation based around Progression in Fluency. These are now used to inform fluency sessions, alongside checking previous learning steps and content from exam analysis.

ICT to Support Learning:

Learning by Questions: KS2 have access to a program called Learning by Questions. The program generates a question set based around a specific area of Maths and allows the children to progress from previous age related questions, to age related and then working at a greater depth. These questions can be used by teachers in their whole class sessions or used as an individual task. Teachers have access to dashboard of results and can identify those learners who need interventions or tackle specific questions that have caused an issue.

Numbots:

We subscribe to Numbots for all of our Year 1 children. This program focuses on number and encourages children to count with accuracy, subitise and see numbers using a number of different variations. Children in Year 1 are set this weekly for homework. The class teacher can monitor gaps in learning and progress using the teacher dashboard.

T T Rockstars:

Starting at Year 2 through to Year 6, the children are set T T Rockstars as homework on a weekly basis. The class teacher will assess the children in September using a baseline from the program. Children are then grouped and set gigs to practise weekly. Baselines will then be done again at the end of every half term to assess progress. Teachers can monitor this through the STATS part of the website. Each class has a display on the maths working wall to prompt the use of T T Rockstars. Children move through the rock star levels based on their speed on recall, not times table knowledge. Once the gig set by the teacher each week has been completed, children can then go on their garage section to continue independent practice.

We encourage our parents to:

- support the school by ensuring that their child attempts the homework.
- provide a suitable place for their child to carry out their homework.
- encourage and praise their child when they have completed their homework.
- become actively involved and support their child with homework activities.
- make it clear that they value homework and they support the school by explaining how it can help learning.

If the children cannot access the technology they need, teachers will make some time available within the school day for those children to practice their skills and complete their task.

10. CROSS-CURRICULAR MATHEMATICS OPPORTUNITIES:

At Hoole St Michael CE Primary School we use the Lancashire Medium Term Overviews as a guide for our long term and medium term planning. Within these units are suggestions for activities to enhance the teaching of maths and link it to areas of the topic being studied.

For example:

Endeavour Class (Year 5 and 6) Greek Topic: Suggestion to study the use of triangular structures and the properties of triangles. Study the weather in Greece and compare to a colder country to revise negative numbers. Research population figures to revise reading larger numbers.

Some subjects such as science or ICT lend themselves to the use of mathematics. Others, may need careful planning and thought to incorporate maths into the lesson. Teachers must ensure that the mathematic links are not tenuous but meaningful and allow children to discover the importance of maths in our world and in their future.

With recovery from COVID 19 in mind, teachers should make sure that they are finding links with maths more regularly in wider curriculum subjects to give children the chance to close any gaps in learning caused by time away from school.

11. ENRICHMENT

We aim to provide our children with as many enriching experiences with mathematics as we can to foster a love of learning and to embed understanding. We offer the following:

- Greater Depth learning maths events with other schools in the TARDIS area which involve working on projects over a number of weeks at a neighbouring school.
- Maths Subject lead and KS1 mastery representative Mrs Louise Horn to continue to teaching for mastery this year (2020/2021) with the NCETM.
- Maths subject lead cluster with other TARDIS schools to increase the quality of teaching and gain knowledge of new resources. Clusters to be organised by Zoom.
- Close links with the local high schools to expose children to different methods of teaching.

12. INCLUSION:

At Hoole St Michael Primary School we aim to provide a broad and balanced education for all pupils. Quality First Teaching is considered an entitlement for all pupils. We aim to provide for all children so that they achieve as highly as they can in mathematics according to their individual abilities. We continually identify which pupils or groups of pupils are under-achieving and take steps to improve their attainment. Gifted children will be identified and suitable learning challenges provided.

Teaching assistant and extra teaching support is allocated according to need.

Children on the Special Educational Needs register have a Targeted Learning Plan (TLP)

The National Curriculum for Mathematics is our starting point for planning a mathematics curriculum that meets the specific needs of individuals and groups of children. We meet these needs through:

- setting suitable learning challenges;
- responding to children's diverse learning needs;
- overcoming potential barriers to learning and assessment for individuals and groups of pupils;
- providing other curricular opportunities outside the National Curriculum to meet the needs of

individuals or groups of children.

Pupils with SEND who are working significantly below age-related expectations will be taught using a tailored approach that is right for their specific need.

13. EQUAL OPPORTUNITIES

All children are provided with equal access to the mathematics curriculum. We aim to provide suitable learning opportunities regardless of gender, ethnicity or home background.

14. PARENTAL INVOLVEMENT

Our parents are encouraged to support with mathematics in a variety of ways:

- Supporting their child with homework activities.
- Attending mathematics workshops
- Attending specific year group meetings
- Supporting events in school
- Attending all official parents' evenings to discuss reports and progress of their child
- Completing and returning the Parental Questionnaire
- To come into school as a volunteer helper to support the children at school with their learning.

15. ROLE OF SUBJECT LEADER

The Subject Leader (Mrs Sarah Cookson), alongside the Head Teacher is responsible for improving the standards of teaching and learning in mathematics through:

- monitoring and evaluating mathematics: at least half-termly work scrutiny, pupil interviews, planning scrutiny, lesson observations, feeding back to staff (*see Monitoring timetable*)
- auditing and supporting colleagues in their CPD and supporting staff development through lesson study approach
- pupil progress; analysing data (termly)
- provision of mathematics
- Monitoring intervention in mathematics in school.
- the quality of the learning environment (through termly walk-through);
- the deployment and provision of support staff
- taking the lead in policy development
- purchasing and organising resources
- keeping up to date with recent mathematics developments
- writing an action plan for mathematics which may be part of the school improvement plan
- ensuring that governors are fully informed regarding standards in mathematics and progress made towards the action plan.

16. THE GOVERNING BODY

Regular reports are made to the governors on the progress of Mathematics provision. This policy will be reviewed every three years or in the light of changes to legal requirements. As we are a teaching for mastery school and this is the second year of our program, we may have to review the policy earlier in light of any changes.

17. CONCLUSION

This policy also needs to be in line with other school policies and therefore should be read in conjunction with the following school policies:

- Teaching and Learning Policy
- Assessment and Record Keeping
- Homework policy
- Responding to pupils' work/Feedback/Marking policy
- Special Educational Needs Policy
- ICT/e-safety Policy
- Equal Opportunities Policy
- Health and Safety Policy

This policy was approved by the Governing Body on.....

Signed..... Date..... *(Chair of SEC)*

Signed..... Date:..... *(Headteacher)*