MATHEMATICS POLICY

Values and Vision:

To create and develop learners who demonstrate:

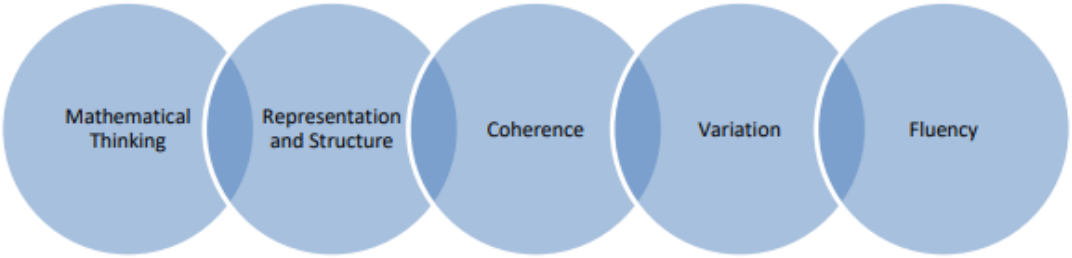
- Respect – by listening carefully to adults and other children who may have different approaches to achieve mathematical solutions.
- Compassion – through working collaboratively and showing togetherness, a range of problems and challenges can always be overcome.
- Creation – by working hard to develop as conceptual learners; being creative with many approaches to challenges.
- Perseverance – to reflect on our efforts and not give up even when things seem difficult, so we can improve ourselves and our work.
- Service – by respecting the efforts of others who help us to improve our confidence, skills and understanding in maths.

Introduction

In September 2019, Willaston Church of England Primary School began transitioning towards a mastery approach to the teaching and learning of mathematics. We understood that this would be a gradual process and take several years to embed. The rationale behind changing our approach to teaching mathematics lies within the research of Guskey (2009) and Skemp (1976), the Mathematics Specialist Teacher Programme, the NCETM/Maths Hub led Mastery Specialist Programme as well as the 2014 National Curriculum, which states:

'The expectation is that most pupils will move through the programmes of study at broadly the same pace. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.'

The Five Big Ideas



**Taken from the NCETM/Maths Hub Mastery Specialist Programme*

Our teaching for mastery is underpinned by the NCETM's 5 Big Ideas (as shown above). Opportunities for Mathematical Thinking allow children to make chains of reasoning connected with the other areas of their mathematics. A focus on Representation and Structure ensures concepts are explored using concrete, pictorial and abstract representations, the children actively look for patterns as well as specialise and generalise whilst problem solving. Coherence is achieved through the planning of small connected steps to link every question and lesson within a topic. Teachers use both procedural and conceptual variation within their lessons and there remains an emphasis on Fluency with a relentless focus on number and times table facts.

At Willaston CE Primary School our principle aims are that:

→ Teaching is underpinned by a clear belief in the importance of mathematics and that the vast majority of children can succeed in learning mathematics in-line with expectations set out in the National Curriculum.

→ Factual knowledge (e.g. number bonds and times tables), procedural knowledge (e.g. formal written methods) and conceptual knowledge (e.g. place value) are taught in a fully integrated way and are essential elements in the learning of mathematics.

→ The whole class is taught mathematics together. The needs of individual pupils are addressed through careful scaffolding, skillful questioning and appropriate and rapid interventions, in order to provide the necessary support and challenge.

→ The reasoning behind mathematical processes is always emphasised. Teacher and pupil interaction explore how answers were obtained; why the method worked and what might be the most efficient strategy.

→ Interim methods to support the embedding of formal written methods, are used for a short period only, as stepping stones into efficient and compact methods (linked closely to Calculation Policy).

→ Precise mathematical language, coached in full sentences, is always used by teaching staff, so that mathematical ideas are conveyed with clarity and precision. Pupils are always expected to do the same.

→ Conceptual and procedural variation are used throughout the teaching process to present the mathematics in ways that promote deep and sustainable learning.

→ Carefully designed experiences are used. These provide focused practice that develops and embeds fluency and conceptual knowledge.

→ Sufficient time is spent on key concepts to ensure learning is well-developed and deeply embedded before moving on.

Planning

Mathematics is a core subject in the National Curriculum. We use the National Curriculum as the basis for implementing the statutory requirements of the programme of study for maths. Planning is based on the White Rose Maths scheme, which follows the new curriculum; staff follow the 'small steps' guide but may adapt the order or time on each step to suit the needs of the children in their care. Power Maths materials are also used to supplement and support the planning process. Support staff are regularly informed of planning through daily discussions.

Staff also follow progression grids in fluency and reasoning from the NCETM website.

At Willaston, we do not solely use or rely on a specific scheme of work.

Teaching and Learning

At Willaston CE Primary School, we follow the Mastery Approach.

Seven Features of Lesson Design

1. Lessons are short but intense; teacher input usually lasts around 20 minutes giving ample time for independent practice whilst the teacher delivers rapid intervention should somebody require it. Independent practice includes reasoning, problem solving and higher-order thinking activities.
2. Lessons are sharply focused with one new objective introduced at a time.
3. Difficult points and potential misconceptions ae identified in advance and strategies to address them planned. Key questions are planned, to challenge thinking and develop learning for all pupils.
4. The use of high-quality materials and tasks (NRICH, NCETM Mastery Assessment materials, Power Maths Materials) to support learning and provide access to the mathematics is integrated into lessons.
5. There is regular interchange between concrete/contextual ideas and their abstract/symbolic representation.

6. Making comparisons is an important form of developing deep knowledge. High-quality questioning is an essential element of this.
7. Teacher-led discussion is interspersed with short tasks involving pupil to pupil discussion and completion of short activities. Formative assessment is carried out throughout the lesson; the teacher regularly checks pupils' knowledge and understanding and adjusts the lesson accordingly. This forms part of the mastery learning instructional process.

Teaching Time

To provide adequate teaching time for developing mathematical skills, each class teacher will provide a daily mathematics lesson. These may vary in length but will usually last for about 60 – 95 minutes. During these lessons, the teacher will ensure that there is a range of teaching input and pupil activities and a balance between whole class, grouped, paired and individual work as appropriate.

Teachers of the Reception children base their teaching on statements in the Early Years Foundation Stage document; this ensures that they are working towards the Early Learning Goals for mathematics (Number and Shape, Space & Measure). Activities are a mixture of child initiated and adult led.

Challenge
In order to ensure that every child achieves to the best of their ability, staff utilise the available planning materials and resources. Activities are pitched according to the needs of the class, with all children accessing an additional daily 'Black Belt Mastery Challenge'. Some children will be able to access this challenge within the activity, while the challenge will then be recapped and discussed as a whole class in the plenary.

Fluency
Daily fluency opportunities are provided for all children. These can be at any point during the school day. For example: A short session might be shared at the very start of the day; during the maths lesson; or at the start of the afternoon session. Fluency opportunities can be supported through the use of 'Flashback 4' questions, 'Power Up' challenges, fluency grids, or through a range of bespoke questions developed by an adult. These can be recorded in a variety of ways which include: on whiteboards, in their maths books, or through peer and class discussions.

Resources
The New Curriculum Framework is our main planning and teaching resource with learning objectives for teaching in the daily maths lesson being from this. Teachers follow the White Rose Scheme of Learning, and supplement the activities and lessons with resources from White Rose, Power Maths, First4Maths and NRich to name a few.

To support the delivery of maths lessons to all pupils, the school has a large range of resources available. Within the classroom, the children will have access to a range of resources. These include basic resources such as number lines, 100 squares, rulers, counters, numicon, etc. Other specific resources (eg, balance scales, meter rulers) are stored in our central resource. Here, equipment is freely available for teachers to borrow as the lesson requires.

Outdoor Learning

At Willaston CE Primary School we make use of learning outside the classroom experiences to enrich and develop children's learning wherever possible.

Links between Mathematics and other Subjects

Mathematics contributes to many subjects within the primary curriculum and regular opportunities are sought to draw mathematical experience out of a wide range of activities. Teachers are encouraged to look at a yearly overview of mathematics objectives and make links between these and the half termly topics. Reasoning and problem-solving is central to our teaching of the new curriculum and will allow children to begin to use and apply mathematics in real-life contexts.

Marking

Maths work is marked daily with reference to targets and next steps. Children are then given the opportunity to respond using their polishing pens to make improvements. Marking is completed in line with the Marking and Feedback Policy.

Assessment

Assessment will take place at three connected levels: short term, medium term and long term. These assessments will be used to inform teaching in a continuous cycle of planning, teaching and assessing.

Short term assessment will be an informal part of every lesson. The teacher will share the objectives for the lesson with the children and make sure they are clear what is being expected of them to successfully achieve the objective. This is a necessary part of Assessment for Learning and helps the children take ownership for their own learning. The short-term assessment will also involve the teacher checking the children's understanding at the end of the session to inform future planning and lessons. Additional support and intervention will be provided immediately. End of block assessments will also take place (linked to White Rose) to check on children's skills and understanding.

Within Key Stage Two, in daily maths lessons, there will be 'Masterclass' support sessions for those children requiring further intervention and support. The size of these groups will vary daily. In addition to regular 'Masterclasses', staff will also lead short 'Same-Day Interventions'. These interventions provide small groups of children with reinforced support on the key points of the day's lesson, whilst also pre-teaching them important information relating to their next steps.

Built into daily lessons, are opportunities for children to reflect on, and respond to marking and feedback on previous work. They might respond to an adult comment; correct a mistake in their work; or respond to an additional challenge which deepens their understanding of a concept.

Medium term assessment will take place at the end of each term. The outcomes of the assessments will be recorded by the class teacher against the objectives and will be used to inform additional challenges and support (e.g. interventions). Such details will be discussed during half-termly pupil progress meetings.

Long term assessments will take place towards the end of the school year to assess and review pupils' progress and attainment. These will be made through compulsory Standard Attainment Tests for pupils in year 2 and 6 and will be supplemented by end of year group expectation tests in other year groups. Accurate information will then be reported to the parents and the child's next teacher.

Pupil's attainment will be recorded on the school tracking system, allowing the senior leadership team and class teachers to clearly recognise which pupils have met age related expectations and which ones haven't. This information is then used to create target groups or to identify individuals requiring intervention (as referred to earlier).

Monitoring and Review

This will be undertaken by the Subject Leader and other members of SLT. Areas to be monitored will be decided at the beginning of each term. Results of any monitoring will be fed back to staff promptly and to SLT at their meetings so that any action required can be carried out effectively. Monitoring will take place in the form of book scrutiny, learning walks, pupil voice, moderation opportunities, pupil progress meetings and performance management meetings. Opportunities will also occur through informal dialogue and during staff meeting time.

Inclusion

Pupils with special educational needs and individual education plans:

→ Within the daily mathematics lesson teachers provide activities to support children who find mathematics difficult. Children with SEN are taught within the daily mathematics lesson and are able to take part at

their level through the support of a Teaching Assistant and appropriate activities and resources.
→ Where applicable children's IEPs incorporate suitable objectives from the Maths Framework.
→ Intervention Groups will take place throughout the year, in order to give further support to children working below national expectations.

8 Classroom Norms to Establish

1. Everyone can learn mathematics to the highest levels.
2. If you 'can't do it', you 'can't do it yet'.
3. Mistakes are valuable.
4. Questions are important.
5. Mathematics is about creativity and problem solving.
6. Mathematics is about making connections and communicating what we think.
7. Depth is much more important than speed.
8. Maths lessons are about learning, not performing.

Roles and Responsibilities

Leadership in maths focuses on raising attainment and improving the provision in the subject. Through links to other areas of the curriculum the subject engages pupils and staff so that learning develops and improves.

1. Subject Leader:

→ Supports teachers in their planning and teaching;
→ Lead by example in the way they teach in their own classroom;
→ Prepare, organise and lead INSET, with the support of the head teacher;
→ Work co-operatively with the members of staff in other roles;
→ Monitor different aspects of maths teaching and learning, feeding back to SLT and staff on findings and future actions.
→ Attend INSET provided by LA numeracy consultants;
→ Be available to discuss with the head teacher, class teachers, parents and numeracy governor the progress of maths in the school.

2. Class Teachers:

→ To deliver a daily maths lesson to their pupils which is engaging and motivating, is informed by the Maths Framework (2014) and is accessible to all children. Maths lessons will focus on the mastery principles.

3. Pupils:

→ To develop their skills, understanding and attainment in Maths through engagement with the lesson, behaviour conducive to learning,

independent work and thought and confidence to challenge or ask for help.

4. Parents / Carers:

→ To support their children's learning in maths by taking an interest in their child's progress, encouraging the children to complete maths homework and having a good relationship with the class teacher so that queries and problems regarding maths can be dealt with easily.

Approved by Governors December 2024



Signed by Chair of Governors