

Integrated Therapeutic Curriculum
Deep Dive

Maths

Intent

Mathematics is a tool for everyday life. It is a whole network of concepts and relationships, which provide a way of viewing and making sense of the world. It is used to analyse and communicate information and ideas, and to tackle a range of practical tasks and real-life problems. It also provides the materials and means for creating new imaginative worlds to explore.

We acknowledge that the primary National Curriculum (NC) mathematics programme of study, based on age expected standards, is comprehensive in scope. However, as a specialist setting, we recognise that for our pupils, the volume of content contained in the NC is a fundamental barrier to achievement and positive pupil engagement. Accordingly, our curriculum is designed on 'stage, not age' principles, promoting progress for each individual pupil from their own starting point.

In designing our maths curriculum, we have drawn on the highly respected work of White Rose, The Autism Education Trust (AET) and the National Centre for Excellence in the Teaching of Mathematics (NCETM), as well as using the DfE's Ready to Progress document. We have combined existing research and best practice with our own extensive knowledge and understanding of how our pupils best engage, learn and demonstrate progress over time.

Through our bespoke maths curriculum, we aim to support pupils to:

- Develop a positive perception of maths
- Identify and celebrate their own mathematical strengths and successes
- Deepen resilience
- Promote problem solving in real life applications
- Develop secure knowledge and confidence in the use of number
- Recognise the importance and practical use of key numeracy skills
- Use functional mathematics skills to broaden their life experiences
- Gain increasing independence by using maths to access the community
- Know when technology can be used to aid independence

Implementation

In designing our own bespoke maths curriculum, we considered the evidence base for what leads to best outcomes for pupils. Ofsted's (2021) research review of mathematics education identified the following important features, which we deem particularly relevant for SEN settings:

- Successful curriculum progression is planned from the beginning of a pupil's education through focusing on core content, to develop pupils' motivation and to allow more breadth and depth later.
- Successful curriculum approaches tend to emphasise core knowledge early on.
- Teachers need to balance introducing new content with pupils' need to spend time revisiting content.
- Pupils should not be rushed through content. There should be space within the curriculum for planned consolidation.

We agree with Ofsted that high quality maths education take place when, 'Teachers remember that it is not possible for pupils to develop proficiency by emulating expertise, but by emulating the journey to expertise'. For all our pupils, we recognise that it is progress along their own mathematical journey that is the measure of success.

Our maths curriculum strand is split into key areas, each with its own curriculum framework and resources:

Early mathematics – drawing on the EYFS (DfE 2023), Development Matters (DfE 2023) and White Rose, this strand focuses on the initial exposure to mathematical ideas, including numbers 0-10, patterns, ordinal and cardinal understanding, and subitisation. A key focus is on the language of time (e.g. first, next, yesterday etc.), as well as introducing shape, basic measures and comparisons.

Number and place value – progression from recognising number with concrete objects in the real world, to developing pictorial and abstract representations. Our number strand is sequential, building on prior knowledge of numbers to 10 and progressing to 10, then 20, 50, 100 and beyond. Pupils are introduced to decimals and negative numbers how these are useful in everyday contexts e.g. money and temperature. In line with NCTEM advice (2022), significant time is spent developing deep understanding of the key ideas that are needed to underpin future learning.

Calculations – following the progression of White Rose and the concrete, pictorial and abstract (CPA) approaches identified in our Mathematics Manipulatives Policy, pupils acquire skills and understanding that promote fluency and relational understanding in calculation. Pupils progress through these skills at their own pace, from their own starting point.

Functional maths – incorporating time, fractions, money, measures, and shape, space and data. Pupils access this strand through cross-curricular learning and targeted, contextualized life skills work. For instance, a visit to a local shop to buy ingredients for a cooking activity may cover time, measures, fractions, and money objectives in one activity.

Implementation

Planning and delivery of the mathematics curriculum:

Curriculum subjects are taught in a cross-curricular way at MHS, wherever possible, to allow children to develop transferable problem-solving skills, give real-world meaning to the subjects and to support engagement and in turn the achievement of all. For example, measuring in a PE lesson or working out change on a trip. When necessary, discrete maths sessions will be taught to teach new ideas or consolidate understanding. In addition to teacher led maths sessions, the use of specific learning apps are also utilised to support pupil engagement with consolidation of prior learning through retrieval and spaced practice (Numbots and IDL).

Teachers use the long-term curriculum overview to develop their medium-term plans, learning is then personalised to the varying needs of the children in each class identified in more detailed weekly plans. So, although there is an overarching thematic map and expected coverage of content throughout the year, the outcomes for each child will be different depending on their individual starting point.

Planning is based on having a thorough understanding of the pupils' needs, gained through effective and rigorous observations, the information from their Educational Health Care Plans (EHCP) and assessments from other professionals and our in-house therapists.

Class teachers complete weekly plans for the teaching of mathematics. These give specific learning objectives for each lesson and details of how the lesson will be taught, how support staff will be utilised and how adaptive teaching practices will support the needs of pupils in the class.

To ensure mathematical concepts and skills are securely built in an appropriate and sequential way, it is expected that classes will have a focus on different SOLAR curriculum strands across the school year. This will ensure basic number fluency, calculation strategies, and real-life applications are steadily developed and progressed. This will be taught in discrete maths sessions throughout the timetable, if a cross curricular approach is not possible.

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Number and Place Value	Number and Place Value	Calculations	Calculations	Functional Maths	Functional Maths Consolidation opportunity
Early Mathematics – as required					

Teaching of math at MHS is supported by our Maths Manipulatives document (Appendix 1), which highlights the importance of a concrete, pictorial, abstract (CPA) approach to embed mathematical understanding of key concepts, promote consistent practices between classes and help staff to identify and promote a solid foundation in the pupils' mathematical knowledge before moving to abstract concepts and application of skills.

Impact

Teachers, therapists, and senior leaders directly monitor and evaluate the impact of our curriculum and pupils' mathematical progress throughout the academic year via our assessment tool, SOLAR. Our maths curriculum strand is intentionally designed to meet pupils' cognition and learning outcomes on their EHCPs and Individual Therapeutic Education Plans (ITEPs). Staff undertake regular CPD to ensure their practice is in line with key developments. Whilst being an independent special setting, we are fortunate to have a range of teaching expertise in the school, from experience of supporting early mathematics in the EYFS through to supporting mainstream Year 6 pupils to achieve 'greater depth' in their SATs. This breadth of knowledge and expertise ensures that all pupils attending Mountfield are set the appropriate level of challenge and are stretched to reach their best possible outcomes.

Pupils can increase their levels of independence through improved mathematical knowledge gained at our school. For our autistic pupils or those with high levels of anxiety, knowledge of telling the time and being able to identify periods of time can aid independent emotional regulation. Knowledge of how to use time and accurate measures is not only useful in a vocational context long term, but promotes immediate progress in independence in healthy living through food preparation, safely administering medication, and accessing leisure facilities.

Resulting from their SEMH needs, many of our pupils have typically experienced frustration and perceived failure when tasked with problem solving activities. We recognise that problem solving is not a solely mathematical skill, and is built on an interconnected set of cognitive and speech and language processes. By creating time and space in our curriculum to develop these areas of need, pupils develop greater resilience towards, and tolerance for, problem solving in mathematical contexts. Additionally, by teaching mathematical concepts in a functional way, linked to real life applications, pupils are motivated and engaged; this improves pupils' perseverance.

Where appropriate, external agencies can be used to identify specific numeracy learning difficulties, such as dyscalculia and dyslexia. We have experience of how this knowledge can aid pupils in recognising their specific learning needs and challenges, boosting their confidence that with right strategies, they can achieve success. As well as an extension of skills, pupils leave Mountfield with greatly improved levels of numeracy and mathematical confidence, from which they can further deepen their knowledge and understanding during the next stage of their education.

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