



*Motivate and Celebrate Success*

# Mathematics

at Mount Charles School

## Contents

1. Curriculum Statement
2. Teaching and Learning
3. Progression
4. Assessment
5. Organisation
6. Equal Opportunities
7. Inclusion
8. Role of the Subject Leader

## Intent

At Mount Charles, we follow a mastery approach to the teaching of the mathematics objectives laid out in the National Curriculum. It is our belief that all pupils can achieve and succeed in maths. In order for this to happen, our curriculum has been planned and implemented to ensure that every child has a sound understanding of the intricacies of mathematics. We aim for pupils to leave our school equipped with the mathematical skills and knowledge to enable them to thrive in life.

Our aspiration is for every child to see themselves as a mathematician - demonstrating a confident attitude towards tackling problems both in and out of the classroom and understanding the importance of maths in the wider world.

## Implementation

To ensure constancy and progression across the school, our main teaching and planning resource is the DfE approved Power Maths scheme, which is fully aligned with White Rose: we use White Rose to ensure coverage of the National Curriculum and Power Maths to deliver it. Power Maths is a clearly structured teaching and learning process that helps us make certain that every child masters each maths concept securely and deeply. For each year group, the curriculum is broken down into core concepts, taught in units. A unit divides into smaller learning steps – lessons. The sequence of lessons is designed to empower pupils to understand core concepts and grow in confidence. Pupils complete work in their Power Maths practice books which support the consistent use of models, images and approaches through the school, allowing pupils to draw on prior learning easily.

Power Maths brings together calculation, reasoning and problem solving in to a series of lessons, which ensures that secure links are made and that prior knowledge is tested and challenged throughout. Pupils are encouraged to solve problems each day through the use of concrete resources, pictorial representations and abstract thinking, the concrete, pictorial, abstract (CPA) approach. All pupils have access to manipulatives to aid them when tackling concepts in a tangible and comfortable way.

In addition, we place a strong emphasis on the power of questioning: this enables pupils to explore topics as a class and verbally develop reasoning skills during lessons. They are

encouraged to take ownership of their learning through self and peer assessment and are encouraged to discuss errors and learn from mistakes.

Teachers and pupils mark work during the lesson so that pupils receive instant feedback about their learning and teachers adapt future planning in response to this.

Number Stacks is used when additional one-to-one or small group intervention is needed to support pupils to keep up.

Every year group has a daily, twenty-minute fluency session:

Years 1 – 6 teach times tables and number bonds using the Mount Charles Times Table Planner document and the strategies out lined in the five day teaching timetable.

Key Stage 1 follow the NCTEM Mastering Number program which aims to secure good number sense in all pupils by focusing on fluency in calculation and a confidence and flexibility with number.

Key Stage 2 follow Fluent in Five which provides daily arithmetic questions to build number fluency and confidence.

Pupils access Times Table Rock Stars in KS2 and Numbots in KS1 to aid with rapid recall of multiplication and division facts and number bonds. This resource is used in school and at home.

## Impact

Subject Leader monitoring has shown:

- In 2022, 71% of Year 2 pupils reached at least the expected standard in maths at the end of KS1 and 71% (nat. 71%) of Year 6 pupils reached at least the expected standard in maths at the end of KS2 compared to 70% (nat. 79%) in 2019.
- 71% of all pupils made positive progress at the end of Key Stage 2 in 2022.
- Pupils make positive progress from YR to Y6: 0.1 points progress in 2022 compared to -2 points progress in 2019.
- The attainment gap between disadvantaged pupils and non-disadvantaged pupils at end of Key Stage 2 is closing with a 4% difference between disadvantaged pupils and non-disadvantaged pupils in 2022 compared to 39% in 2019.
- The attainment gap between girls and boys at the end of Key Stage 2 is closing with 13.2% difference between girls and boys in 2019 compared to 8% in 2022.
- Pupils enjoy maths and are confident mathematicians across a range of concepts.
- Pupils of all abilities including those with SEND are able to succeed in maths lessons.
- Pupils of all abilities feel success in maths lessons.
- Pupils use a range of strategies to efficiently calculate mentally.
- Pupils have a secure understanding of written methods and can apply them appropriately.
- Pupils talk passionately and with confidence about their learning in maths.
- Pupils are able to access maths across the curriculum in their next stage of education.
- Teachers plan lessons which meet the needs of all learners including those with SEND and disadvantaged.

- Teachers are secure in their subject knowledge.
- Parents and carers have a good understanding of how they can support maths at home.

Impact of mathematics at Mount Charles School is carefully tracked and measured by:

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- Termly PuMA assessments (Year 1-5);
- Termly past-paper SATs assessment (Year 6);
- Analysis of the PuMA assessments by the maths lead who subsequently shares action points and priorities with class teachers;
- Termly data meetings to review individual pupils' progress as well as progress of the class and cohort;
- Half-termly monitoring of pupils' maths outcomes in workbooks;
- Half-termly learning walks to monitor maths teaching – successes and feedback given to teachers;
- Number Stacks provision reviews on Edukey;
- Half-termly monitoring of maths outcomes in pupil workbooks;
- Half-termly learning walks to monitor maths teaching – successes and feedback shared with teachers.
- Pupil conferencing linked to maths.

## 1. Teaching and Learning

Our mastery approach to the curriculum is designed to develop pupils' knowledge and understanding of mathematical concepts from the Early Years through to the end of Y6. Our curriculum is designed to develop Substantive and Disciplinary Knowledge (see below).

### EYFS

In EYFS, children develop their Maths skills through planned and child-initiated play and activities: communicating and modelling language, showing, explaining, demonstrating, exploring ideas, encouraging, questioning, recalling, providing a narrative for what they are exploring, facilitating and setting challenges.

NCETM materials and the Power Maths approach are adopted to structure teachers' planning with a focus on developing a deep understanding of number through subitising and number recognition activities.

### NCETM Mastering Number Programme

EYFS and KS1 follow the NCETM Mastery Number Programme daily which aims to secure firm foundations in the development of good number sense for all pupils from EYFS through to Year 1 and Year 2. The aim over time is that pupils will leave KS1 with fluency in calculation and confidence in number. Attention is given to key knowledge and understanding needed in EYFS classes, and progression through KS1 to support success in the future.

## KS1 and KS2

When pupils reach KS2 they learn mathematics through the Power Maths Scheme, which is rooted in the national curriculum. Power Maths is a comprehensive, mastery scheme of work that embeds a growth mindset approach to Maths and provides a breadth of resources and teaching sequences upon which teachers build their units of work and assessment. Its inclusive and sequential approach builds a deep understanding of mathematical concepts supporting teachers to form schema in their teaching thus helping knowledge remain in pupils' long term memory. Power Maths adopts a metacognitive approach of 'I do, We do, You do' using 'Discover, Share, Think Together, Independent Practice'. It is progressive within and across year groups.

Alongside Power Maths, all teachers use the NCETM 'Ready to Progress' materials from the 2020 DfE mathematics guidance for Key Stage 1 and 2. These materials help them to prioritise core concepts; identifying the most important conceptual knowledge and understanding that pupils need as they progress from Year 1 to Year 6. It provides a coherent, linked framework to support pupils' mastery of the primary mathematics curriculum.

### Substantive Knowledge

Pupils are explicitly taught key number facts and mathematical concepts so that they are fluent. They have time to explore relationships between number facts. Over time, children are able to instantly recall and retrieve concepts taught. Pupils can demonstrate this knowledge by verbalising methods used. This knowledge is taught through daily Number Sense, Power Maths, Mathematical Sentence Stems and Flashback retrieval activities.

### Disciplinary Knowledge

Pupils will apply their Disciplinary Knowledge through reasoning and problem-solving activities. They have opportunities to do this through Power Maths challenges and Reflects. Mathematical sentence starters are taught and displayed in all classrooms to support this.

Teachers and teaching assistants target support for all learners to enable them to achieve at an age-related standard. Pupils working below the expected standard for their age receive intensive support including targeted feedback, scaffolded support resources, one-to-one tuition and small group work. Number Stacks is used for one-to-one and small group intervention. Confident mathematicians are given opportunities to extend their knowledge and understanding in a variety of ways, including showing a greater understanding of a particular concept by applying their knowledge across a range of areas and tackling multi-step problems.

A wide range of resources are used to support pupils and enable them to become independent mathematicians. Wall displays, prompts, sentence stems and key vocabulary displayed will allow developing mathematicians to learn, recall, rehearse and retain methods taught.

## **2. Assessment**

### **Summative assessment**

Maths is assessed termly using PUMA (standardised assessment papers), allowing teachers to confidently assess each of the content domains and generate diagnostics about strengths and weaknesses to inform teacher planning.

### **Formative assessment**

Continuous assessment for learning is at the heart of our mathematics teaching approach and, as such, teachers are continuously assessing what their pupils can do - tailoring the next steps in the sequence of learning accordingly at cohort, class, group and individual level. The 'planning considerations' toolkit outlined in the Mount Charles Teaching and Learning policy are used to aid teachers in both their planning before the lesson and during 'in the moment' changes that may need to be made to maximise progress.

## **5. Organisation**

In Key Stage 1 and 2, 20-minute fluency sessions are held before the daily, 1-hour Power Maths lesson.

Fluency in Key Stage 1 follows the NCETM Mastering Number programme and the Mount Charles Teaching Tables and number bonds planner.

Fluency in Key Stage 2 follows Fluent in 5 and the Mount Charles Times Table and number bond planner.

All maths lessons use an 'I do, We do, You do' structure.

## **6. Equal Opportunities**

At Mount Charles we are committed to promoting equal opportunities irrespective of socioeconomic background, gender, disability and ethnicity in all areas of the curriculum. We believe all children should have access to and participation in the learning of mathematics and be supported in this process.

## **7. Inclusion**

Teachers will aim to include all pupils fully in their daily mathematics lesson. Teachers will differentiate to meet the needs of all pupils and use teaching assistants to support pupils where appropriate. However, a pupil whose difficulties are severe or complex may need to be supported with an individualised programme from an appropriate starting point.

## **8. Role of the Subject Leader**

The leadership of the mathematics curriculum is the responsibility of the subject leader who:

- \* ensures the school has an effective mathematics curriculum for staff to follow. They ensure staff new to the school, including ECTs understand the mathematics curriculum and how to deliver it effectively;
- \* supports colleagues in their teaching by keeping them informed in current developments in mathematics;
- \* writes a subject action plan, informed by the whole school improvement plan;
- \* carries out triangulated monitoring to identify strengths across the school, CPD priorities and inform action planning;
- \* delivers and/or sources appropriate training for staff;
- \* tracks progress across the school with particular emphasis on identified target pupils;
- \* leads planning, preparation and effective execution of world maths day;
- \* ensures mathematics resources required to deliver effective class teaching and intervention are available, looked after and updated/replaced as necessary.

Policy Agreed:

Autumn 2022

Policy Review Date: Autumn 2023