

St Mewan CP School - Maths 2023 - 2024

Intent:

In Maths, we aim to give the children necessary skills to **prepare them for life** in modern British Society. As an **inclusive** primary school, our curriculum reflects both the **context** of the school and the experiences of the children. This enables the children to be develop a **passion** and be **aspirational**, to fulfil their **potential** and reach the highest of expectations that we have of them.

Maths is a long-term journey. A deep **understanding** of Maths is achieved through exploration, clarification, practice and application over time. At each stage of learning, children should be able to demonstrate a deep, conceptual **understanding** of the topic and be able to build on this over time.

There are 3 levels of learning:

Shallow learning: surface, temporary, often lost.

Deep learning: it sticks, can be recalled and used.

Deepest learning: can be transferred and applied in different contexts.

The deep and deepest levels are what we, at St Mewan, aim for by teaching maths using the Mastery approach.

We intend to do this by:

- Ensuring our children have access to a high-quality maths curriculum that is both **challenging** and enjoyable and quality-first teaching.
- Providing our children with a variety of mathematical opportunities, which will enable them to make the connections in learning needed to enjoy greater depth in learning.
- Fully develop independent learners with inquisitive minds who have secure mathematical foundations and an interest in self-improvement.
- Encourage curiosity and a **passion** to learn Maths
- Provide a set of **values** to prepare them for life beyond our school
- Develop the **behaviours** Mathematicians need to succeed

Metacognition in Maths

In our Maths lessons, we aim to develop pupils' independent learning **skills** using metacognitive approaches. Our intent has a much broader application: our aim is for

these learning **skills** to filter through to all subjects, with children applying them in all areas of the wider school curriculum. We will:

- Develop pupil self-esteem to create confident, resilient learners that are not afraid to take risks.
- Ensure all children are engaged in lessons with no passive learners.
- Develop resilience in children
- Develop children's self-awareness as learners
- Develop fluent number fact **knowledge** that children can transfer and apply in other areas of maths, thus reducing cognitive overload.

Implementation:

Our mastery approach to the curriculum is designed to develop children's **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**.

KS1 and KS2

In school, we follow the **National Curriculum** and use the Power Maths Scheme to support teachers with their planning and assessment. Power Maths is a comprehensive, mastery scheme of work that embeds a growth mindset approach to Maths. Its **inclusive**

approach helps all children build a **deep understanding** of maths concepts. 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.

EYFS

In Reception, children also follow the Power Maths scheme of work. Their Maths **skills** are further developed 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 doing, facilitating and setting **challenges**.

Planning is in line with the NCETM materials with a focus on developing a deep **understanding** of number through subitising and number recognition activities.

Fluency time

As part of our daily fluency time, year groups take part in targeted learning tasks appropriate to their year group.

KS1 – Number Facts Fluency through numbersense – the Number Facts Fluency programme builds confidence and flexibility with number, and fluency in addition and subtraction facts.

Year 2 also starts teaching of times tables in Spring term.

Year 3 – Continue the Number facts fluency until the end of Autumn term and then move on to the times table programme through numbersense.

Year 4 – Continue the times table programme through numbersense

Year 5 and 6 – Teach times tables daily.

Key Stage 2 learn and teach arithmetic **skills** through “Quick Fire Maths” which is a protected time of the day where teachers plan for the needs of their children focusing on number work.

‘Goal Free Lessons’

At the end of each unit, children take part in a ‘Goal Free’ lesson. Such open-ended lessons allow children to tackle problems in smaller steps at their own pace, at their own level. Such questions build resilience in children, encourage them to persevere

with problems, to 'See the Maths' in everyday problems and use a range of mathematical language.

Teaching and Learning, Content and Sequence:

- At the start of each new topic, key **vocabulary** is introduced and revisited regularly to develop language acquisition, embedding as the topic progresses.
- At the start of each lesson, classes reactivate prior learning through a short retrieval activity called a 'Flashback **Challenge**'. This short retrieval activity gives pupils the opportunity to recall previous learning from their long-term memory and ensures all learning is fully embedded. Children will 'Know more and remember more'.
- Children are taught through clear modelling and have the opportunity to develop their **knowledge** and **understanding** of mathematical concepts. The mastery approach incorporates using objects, pictures, words and numbers to help children explore and demonstrate mathematical ideas, **enrich** their learning **experience** and deepen **understanding** at all levels.
- Children move through a lesson's learning at their own pace. They will acquire the skill, apply the skill or deepen the skill within the lesson.
- Children who have shown their **understanding** at a deep level within the unit, will have opportunities to apply these **skills** in a greater depth activity. This should be challenging and ensure that children

are using more than just one skill to be able to answer the mathematical problems.

- Reasoning and problem solving are integral to the activities children are given to develop their mathematical thinking.
- Resources are readily available to assist demonstration of securing a conceptual **understanding** of the different **skills** appropriate for each year group. Children are always encouraged to model their **understanding** using manipulatives in multiple ways. Children have easy access to manipulatives to support their learning in all lessons.
- A love of maths is encouraged throughout school via links with other subjects, applying an ever-growing range of **skills** with growing independence, that will **prepare them for adult life**.
- We are an **inclusive** school and so children with additional needs are included in whole class lessons and teachers provide scaffolding and relevant support as necessary. For those children who are working outside of the year group curriculum, individual learning activities and interventions such as Number Stacks are also provided to ensure their progress.
- Staff use the NCETM Ready to Progress materials and the Maths Hub PD materials to support children and give them additional maths teaching where necessary. These materials may be

used whole class or in smaller sized intervention groups. Adults use these materials to track back to previous year groups' objectives and learning where necessary.

- Small group Number Stacks interventions are used to support children working below expectations. This intervention focuses on the children acquiring key mathematical **skills** in a specific area of the Maths curriculum for a short and targeted period of time before they return to whole class Quality First teaching.
- Staff will make use of the local environment to teach Maths where possible. In EYFS, children are encouraged to see numbers all around them. Maths learning intentions are supported outdoors. Teachers identify opportunities for maths learning and enhancing provision outdoors, celebrating the unique qualities of the outdoor environment. Children use natural resources and are encouraged to learn maths through all their senses, including touch, smell, sound and taste.
- KS1 and KS2 use the outdoor school environment for the likes of shape hunts, angle hunts, position and direction **challenges**, and undertaking surveys and data analysis.
- Children are encouraged to make links between things in the outdoor environment and Maths. This helps pupils to start making connections with the work they do in class and the how it connects with the real world.

Declarative **Knowledge**

Children 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 mathematical concepts taught. Children 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.

Conditional **Knowledge**

Children will apply their Declarative **Knowledge** through reasoning and problem solving activities. The children have opportunities to do this through Power Maths **challenges** and Reflects. Mathematical Sentence Starters are taught and displayed in all classrooms to support this.

Leadership, Assessment and Feedback:

- Assessment informs the teaching and learning sequence.
- Feedback is given on children's learning and acted upon quickly.
- Formative assessment within every lesson helps teachers to identify the children who need more support to achieve the intended outcome and who

are ready for greater stretch and **challenge** through planned questioning, whiteboard assessment checkpoints or additional activities.

- In order to support teacher judgments, children are assessed termly using current and reliable tests in line with the **National Curriculum** for maths. Gap analysis of any tests that the children complete is undertaken and fed into future planning.
- The Maths and Metacognition Lead has a clear role and overall responsibility for the progress of all children in maths throughout school. Working with the rest of SLT, key data is analysed and regular feedback is provided, to inform on progress and future actions. Maths Learning Walks, pupil conferencing and monitoring of planning is undertaken regularly.

Impact:

The impact we will see throughout Mathematics:

- Children show independence in lessons
- Children will show confidence in believing that they will achieve.
- Each child achieves objectives (expected standard) for their year group.
- Children will be able to talk about their previous and current learning.

- The flexibility and fluidity to move between different contexts and representations of maths.
- The chance to develop the ability to recognise relationships and make connections in maths lessons.
- Children will develop as **critical thinkers**. They will think logically and rationally in their Maths lessons, **understanding** the connections between different areas of maths. Learners will have the confidence to tackle problems and engage in reasoning tasks independently.
- Mathematical concepts or **skills** are mastered when a child can show it in multiple ways, using the mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations.
- Children show a high level of pride in the presentation and **understanding** of the work.
- The implementation of the Number Sense Programme and Fluent in Five will lead to fluency in addition and subtraction facts, and to a deep **understanding** of number and number relationships.
- In order to see mathematical development and success, leaders and teachers will see the following mathematical behaviours from adults and children within lessons:

- High quality teaching to develop problem solving abilities.
- Teachers and other adults providing challenging problems, encouragement, and assistance in learning how to approach complex problems.
- When confronted with challenging or unfamiliar tasks, children will exhibit persistence and confidence.

- Metacognitive **skills** will be developed amongst pupils to help them assess, plan and approach challenging mathematical problems.
- Children will use these learnt independent learning **skills** in other areas of the school curriculum: independent learning, no passive learners, belief in themselves as learners.

These impact indicators will be assessed through: termly assessments, pupil tracking, pupil progress meetings, pupil conferencing, lesson observations and drop ins, performance management and moderation.