

# Mathematics Policy

## **National Curriculum Statement on Maths:**

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

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## **A: Introduction**

This policy outlines the teaching, organisation and management of the mathematics at Salisbury Primary School from Reception to Year 6. In order to raise standards and enhance the delivery of mathematics the school took the decision to take on board the MMS (Maths Makes Sense) Program of study. This provides a complete programme of work for primary schools and covers all of the legal requirements of the National Curriculum. It is based around ten Big Ideas and uses concrete objects, exaggerated actions and special vocabulary to enable every child to access the mathematics being taught and succeed.

All teaching and support staff were trained in MMS at the beginning of implementing the program in summer term 2013. New staff have continued to receive training each autumn term 2013 and 2014.

This policy has been drawn up following the practices and principles of MMS and will be presented for full agreement at the next Governing body meeting. The implementation of this policy is the responsibility of the teaching staff.

### **1. Aims of teaching mathematics in our school**

- ❖ To promote enjoyment and enthusiasm for learning, through practical activity, exploration, discussion and reasoning.
- ❖ To enable each child to develop within their capabilities; not only for the mathematical skills and understanding required for later life, but also an enthusiasm and fascination about maths itself.
- ❖ To increase children's confidence in all areas of maths so they are able to express themselves and their ideas.
- ❖ To develop the ability to solve problems through decision-making and reasoning in a range of contexts.
- ❖ To develop the practical understanding of the ways in which information is gathered and presented.
- ❖ To explore features of shape and space and develop measuring skills in a range of contexts.
- ❖ To understand the importance of maths in everyday life.
- ❖ To be able to work independently and collaboratively.

## **B: Teaching Mathematics**

### **The structure of skills in the MMS Scheme**

#### **Years 1 - 6**

MMS is structured into 6 blocks throughout the year, one block for each half term. Each block covers 5 weeks of work and has a set of end of block objectives. The skills to be taught are covered in six different strands - Arithmetic 1, Geometry, Data and Measure, Arithmetic 2, Reasoning and Practice. Each of these strands are taught on a separate day of the week to ensure the children are being taught a range of skills. The Practice strand is incorporated every day in each maths lesson or anytime during the day.

<b>Day</b>	<b>Strand</b>
Monday	Arithmetic 1
Tuesday	Geometry
Wednesday	Data and Measure
Thursday	Arithmetic 2
Friday	Reasoning

### **Foundation Stage**

MMS, in the foundation stage is structured into 6 blocks throughout the year, one block for each half term. It focuses on one or more of the strands. The strands link to the EYFS profile points. These are: Counting, Number, Writing, Calculation, Shape, Position, Sorting and Data, Measure and Problem Solving. The planning consists of weekly plans where the main teaching is repeated throughout the week to enable the children to meet a set of end of week objectives, which build block by block over the year ensuring the children make steady progress towards achieving the end of year objectives.

Throughout the week the children have 5 group work areas including one outside. Within those areas two groups work with an adult on a guided activity and an adult initiated activity (adult facilitates the learning then observes) and the rest of the children work independently on child initiated activities linked to the strand and to the other areas of learning. These areas give the children the opportunity to practice new and prior learning in both formal and informal contexts. This planning is differentiated to enable all children to progress to their full ability.

### **Teaching time**

To provide adequate time for developing and applying mathematical skills each class teacher will deliver a daily maths lesson which is one hour in length. In the foundation stage, mathematics is taught daily in the morning session. This is delivered through whole class direct instruction, small group guided practice activities with an adult and child initiated activities. On a daily basis opportunities are provided for the children to develop and apply their mathematical skills through the other areas of learning.

### **Class organisation**

From Year 1 onwards, all pupils will have a dedicated daily mathematics lesson. Within each lesson there is a good balance between whole-class work (direct instruction), guided work, partner work (A and B partners) and individual practice. Children are grouped across year groups for maths; this enables group sizes to vary which in turn ensures all children have quality differentiated learning.

### **A typical lesson**

A typical 60 minute lesson in Year 1 to 6 will be structured like this:

#### **a. Daily practice (about 5 to 10 minutes)**

This will involve whole-class work to rehearse, sharpen and develop mental and oral skills. *This may also take place discreetly at other times during the day.*

#### **b. The main teaching (about 30 to 40 minutes)**

This will include teaching input and pupil activities and a balance between whole class teaching (direct instruction), group work, paired work (partners A and B), and individual work.

#### **c. A review of learning (about 10 minutes)**

This will involve work with the whole class to sort out misconceptions, identify progress, summarise key facts and ideas and what to remember, to make links to other work and discuss the next steps. *A mini review may occur at any time during the lesson.*

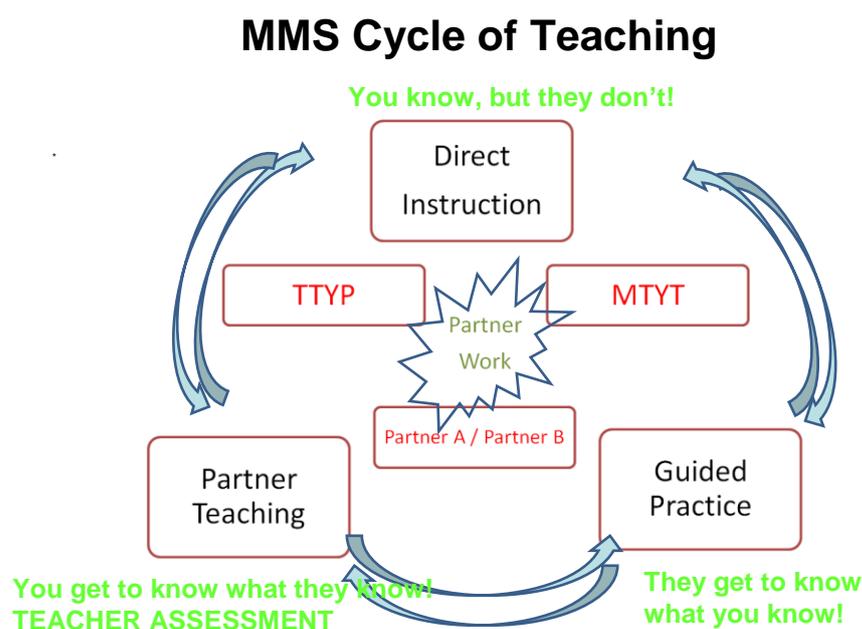
In maths lessons, pupils engage in:

- The development of mental strategies
- Written methods
- Practical work
- Problem-solving
- Mathematical discussion
- Consolidation of basic skills and routines

We endeavour to set work that is challenging, motivating and encourages the pupils to talk about what they have been doing. We achieve this in maths by teachers and teaching assistants providing assisted performance to respond to each child's individual needs. We also provide the opportunity for the children to attempt challenge questions where they are able to demonstrate and practice their new skills in using and applying questions. MMS is also supplemented with additional numeracy books which enables children to consolidate their learning and encourages them to become active learners.

## The cycle of teaching and assessment

The teachers use this cycle as a structure to support teaching and assessment. It is very flexible and the teachers use it as a way of structuring the teaching of the whole class and also individual groups/children i.e. some children might need more direct instruction so will work with the additional adult, while other children will practice their skills through guided practice, while the teacher supports where necessary (assisted performance). Children that are able to work independently are able to select progressive work which allows them to fully embed their understanding of each new concept.



## Planning

MMS provides plans for each year group for the year including end of key stage objectives, performance indicators and overviews for each strand. MMS has planning folders numbered 1 through to 6. The split maths groups use the folder that provides an achievable challenge to the learners. For example a more able year 2 child could be taught using folder 3.

It is the responsibility of the teacher to ensure the weekly planning is annotated.

It should have:

- The date and teachers name
- Learning objective
- Steps to success/or proposed if writing it with the class.
- Challenge questions (at least two)

- Identified additional pages for consolidation work for consolidation work and locations (e.g. Anita Straker book 2 pg 23) or additional pages stapled to the planning
- Planning to have meaningful annotations that inform subsequent lessons e.g struggling children named or ease of lesson noted so that greater challenge is presented in the next lesson.

### **Targets**

All teaching areas have a target display with targets identified in the 'I can' assessment booklets for each folder. It is the teachers' responsibility to inform the children of the targets that they are working towards on each teaching unit. Teachers at Salisbury should refer to the targets frequently during lessons and allow the children to place their names beside each target as it is achieved. The children can then mark off the target in their assessment book.

### **Salisbury Challenge**

To ensure children are making progress with their time tables Years 1 - 6 are provided with a times table card. The children can be tested on their times table knowledge during lesson starters and also during booster classes. The children are awarded certificates for achieving stickers. The certificates are bronze for reciting a multiplication table in order; a silver certificate is for being able to correctly answer multiplication questions from a multiplication table in any order and gold for knowing the division and multiplication facts for a multiplication table. There is also a platinum certificate available this is achievable by knowing the multiplication and division facts in any order for the 2, 5 and 10 (Year 1), 2,3 and 5 (Year 2) 4 and 8 (Year 3) and 6,7, and 8 (Year 4 and above).

### **Homework**

In Years 1-6 the children will have weekly timetables sent home to practice from their Salisbury Challenge. Other maths homework will be sent home when the teacher from the maths group teacher.

### **Links between mathematics and other subjects**

Mathematics contributes to many subjects within the primary curriculum and opportunities will be sought to draw mathematical experience out of a wide range of activities. This will allow children to begin to use and apply mathematics in real context.

## **C: School and Class Organisation**

### **How we cater for pupils who are more able**

Maths splits allow the more able pupils to be taught in groups which challenge them through partner teaching and extra challenges which apply the skills they have learnt in lessons. Teachers also use Testbase to encourage the children to apply what they have learnt. In year 5 and 6 where children are more able they do not follow MMS but work through Anita Straker book 3 and 4, they also work collaboratively on problem solving tasks which promote a deeper use of their reasoning skills.

### **Pupils with Special Educational Needs (SEN), EHC (Educational and Health Care Plans) and Support Plans**

Ability grouping ensures that all pupils have access to progressive mathematics lessons, some children will need more focus on the assisted performance part of MMS. Those children who are not track to achieve their end of year expectations will be taught in a smaller group with MMS content but at a lower level.

### **Resources**

There is a range of resources to support the teaching of maths across the school. Resources for the delivery of MMS are stored in each class room. Other additional equipment is stored in the maths cupboard. Each classroom has a working wall, displayed on the working wall is as follows:

- ❖ key vocabulary - relevant to current work
- ❖ Display of strategy used to do a calculation
- ❖ Each stand e.g. arithmetic 1, Geometry, Data and Measure, Arithmetic 2 and Reasoning
- ❖ Children's work.
- ❖ Cup man sayings
- ❖ Maths makes sense banner
- ❖ Target poster (close to journey)

### **Computing (ICT)**

ICT will be used in various ways to support teaching and learning. ICT will involve the computer and calculators, please note much of the MMS program encourages using a calculator, at Salisbury we do not encourage such wide spread use of the calculator. They will only be used in a daily mathematics lesson when it is the most efficient and effective way of meeting the lesson objectives.

## Assessment

Assessment will be used to inform teaching in a continuous cycle of planning, teaching and assessment.

Short-term assessment will be an informal part of every lesson to check the children's understanding and give teachers information, which will help them to adjust day to day lessons plans. This will happen through observation, talking to the children, using a range of questioning, marking (including MMS codes e.g. I=independent, PW=partner work, GP=guided practice, PT=partner teaching and DI=direct instruction) gap tasking of work. Marking will be carried out daily in accordance with the school's marking and feedback policy.

In Years 1 - 6 the assessment is carried out at the end of each unit of work. Teachers track the children in their group through recording the level of assistance children require when working independently the end of unit tasks.

These assessments can be compared to the national curriculum end of year programme of study. The teachers will be able to use their teacher assessment to talk about the progress that each child has made in their class at a pupil progress meeting. The teachers are expected to give reasons for progress or lack of progress and what can be done to ensure the progress is happening.

In the Summer term 2015 Year 2 and 6 will do SATs tests in mathematics and Years 3, 4 and 5 will do optional tests. The teachers use the results alongside their teacher assessments to make a final judgment on every child's mathematical attainment.

Accurate information will then be reported to parents during parent's evening when the end of year reports are handed out. Then they will be shared with the child's next teacher during a hand over meeting.

## **D: Management of Mathematics**

### **Role of the Mathematic coordinator and development leader**

- ❖ Teach demonstration lessons.
- ❖ Ensure teachers are familiar with MMS and help them to plan lessons.
- ❖ Lead by example in the way they teach in their own classroom.
- ❖ Whole school monitoring (when mathematics is a focus on the monitoring cycle) with a view to identify any support needed.
- ❖ Prepare, organise and lead INSETs.
- ❖ Work with parents/staff (workshops)
- ❖ Discuss regularly with the head teacher and feedback to *Governors*.
- ❖ Produce clear and concise action plans for improving mathematics in the school.
- ❖ Monitoring progress in mathematics through PPM and assessment data
- ❖ To have a clear understanding of what is happening in mathematics throughout the school.

**adapted by: Hayley Carlile**

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**Review date: December 2016**

**To go before the *Governors* on 6<sup>th</sup> December 2017**