Maths Policy

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The Purpose of Maths

According to the National Curriculum (DfE 2021), "Mathematics is a creative and highly interconnected 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."

Aims

The national curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

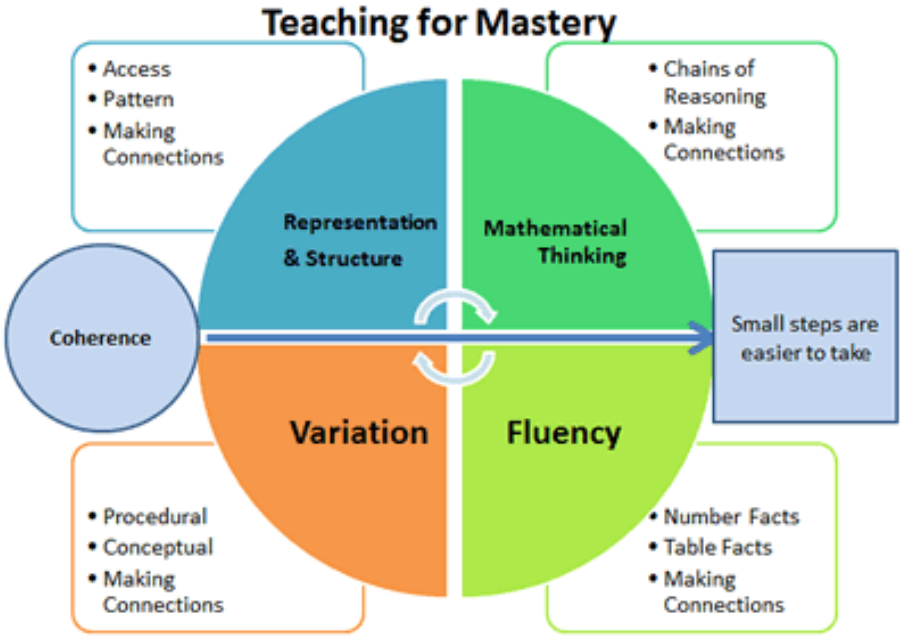
Our Vision

At Holy Souls, our vision is for all children to reach their true potential within Maths and for all children to succeed. Alongside the Central Maths Hub and advice and guidance from a Specialist Maths Teacher, Holy Souls are developing their curriculum into one incorporating Teaching for Mastery.

Teaching for Mastery

Teaching for Mastery is made up of the Five Big Ideas:

- Fluency
- Coherence
- Variation
- Representation and Structure
- Mathematical thinking



FLUENCY INVOLVES:

• Quick recall of facts and procedures

• The flexibility and fluidity to move between different contexts and representations of mathematics.

• The ability to recognise relationships and make connections in mathematics

REPRESENTATION & STRUCTURE

Mathematical structures are the key patterns and generalisations that underpin sets of numbers – they are the laws and relationships that we want children to spot. Using different representations can help children to 'see' these laws and relationships.

VARIATION

Procedural variation – This is a deliberate change in the type of examples used and questions set, to draw attention to certain features.

Conceptual variation – When a concept is presented in different ways, to show what a concept is, in all of its different forms.

MATHEMATICAL THINKING INVOLVES:

- Looking for pattern and relationships
- Logical Reasoning
- Making Connections

COHERENCE

Teachers should develop detailed knowledge of the curriculum in order to break the mathematics down into small steps to develop mastery and address all aspects in a logical progression. This will ensure deep and sustainable learning for all pupils.

EYFS

The principal focus of mathematics teaching in the Early Years Foundation Stage is to ensure that pupils develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems, and to describe shapes, spaces, and measures. Children will develop their understanding through planned, purposeful play and through a mixture of adult-led and child-initiated activity. There are opportunities to undertake maths activities within continuous provision/outdoor play and enhancements linked to the current learning

Key Stage 1

The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources (e.g. concrete objects and measuring tools). At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of Year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency. Pupils should read and spell mathematical

vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

Key Stage 2 maths

Lower Key Stage 2 – Years 3-4.

The principal focus of mathematics teaching in Lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value.

Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of Year 4, pupils should have memorised their multiplication tables up to and including the x12 multiplication table and show precision and fluency in their work.

Upper Key Stage 2 – Years 5-6

The principal focus of mathematics teaching in Upper Key Stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems.

Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of Year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Alongside the above objectives runs a desire to implement key reasoning and problem-solving skills within lessons and also throughout the wider life of school. We aim to develop children's resilience, focus and problem skills by providing them with relevant challenge via various mathematical representations including open ended problems and real word application.

Inclusion

Teaching maths for mastery is different because it offers all pupils access to the full maths curriculum. This inclusive approach, and its emphasis on promoting multiple methods of solving a problem, builds self-confidence and resilience in pupils. Though the whole class goes through the same content at the same pace, there is still plenty of opportunity for differentiation.

Taking a mastery approach, differentiation occurs in the support and intervention provided to different pupils, not in the topics taught, particularly at earlier stages. There is no differentiation in content taught, but the questioning and scaffolding individual pupils receive in class as they work through problems will differ, with higher attaining children, or those pupils who grasp concepts quickly, challenged through more demanding problems which deepen their knowledge of the same content. Those children who are not sufficiently fluent are provided additional support to consolidate their understanding before moving on.

Pupils' difficulties and misconceptions are identified through immediate formative assessment. Where children make less than expected progress efforts are made to ensure relevant support is put in place to help support the child. No child will be denied a full curriculum however and concepts will be revisited throughout the year during challenge times or intervention times to help with long term understanding.

Lesson Organisation

• All children receive a daily maths lesson (at times this may need to be rearranged due to external supply), although mathematical skills run through many other areas of the curriculum.

• Each lesson focusses on one clear learning objective which all children are expected to master; extension activities enable those children who grasp the objective rapidly to extend their learning by exploring it at greater depth.

• Each lesson can include elements of: fluency, to practise skills; reasoning, to deepen understanding; and problem solving, to apply skills depending on the objective being taught and the understanding of the children.

• Teachers use the White Rose Mastery planning and resources to aid Maths teaching within school. Teachers follow the scheme of work provided by the

Maths Hub to ensure full curriculum coverage including fluency, reasoning and problem solving opportunities are addressed within lessons.

• Whole class teaching is adopted and children work in mixed ability groups. We believe that all children should have the same standard of teaching and to ensure this we aim not to group children based on their ability but also accept that at times this may be necessary. We therefore aim to differentiate via outcome rather than work set.

Planning

Holy Souls follow White Rose Mastery planning to help construct short, medium and long term planning. Planning is adapted accordingly to ensure appropriate coverage of all mathematical strands. Once they understand a mathematical concept, they are then required to solve problems and carry out investigations to deepen their conceptual understanding while also becoming more sophisticated in their Mathematical approach.

All classes have a daily mathematics lesson where possible. In key stage one lessons are 45-60 minutes and in key stage two at least 60 minutes. Teachers of the EYFS ensure the children learn through a mixture of adult led activities and child initiated activities both inside and outside of the classroom. Mathematics is taught through an integrated approach. Lessons are available through weekly plans which are accessible to the maths subject lead.