ST. HUGH'S CATHOLIC PRIMARY VOLUNTARY ACADEMY

MATHS

INTENT:

Maths is defined by the National Curriculum as follows:

' 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'

The aims of the curriculum are to ensure that all pupils:

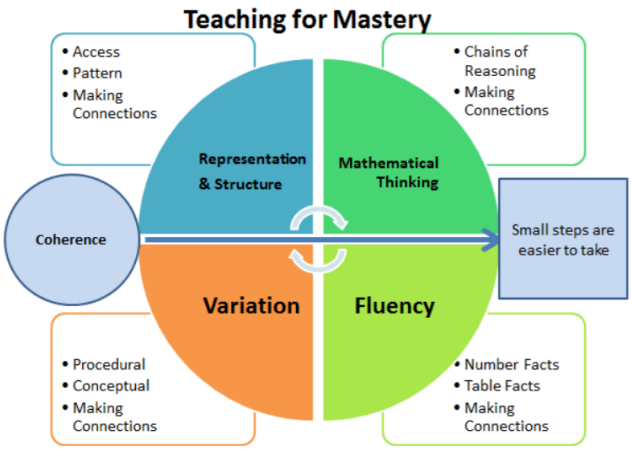
' > become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
> reason mathematically by following 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. '

At St. Hugh's we understand that maths is an interconnected subject and that pupils need to be able to move fluently between representations of mathematical ideas. Our ambition for our pupils is that they are supported in their learning to make rich connections across mathematical ideas and develop their fluency, reasoning and competence in solving increasingly sophisticated problems as they move through our school. We also want to enable pupils to apply their mathematical knowledge in other areas of the curriculum, for example, recording and analysing data in Science, using coordinates and direction skills in Geography and understanding of numbers and their effects when coding in computing lessons.

We expect that the majority of pupils will move through our mathematics curriculum at broadly the same pace, although our teachers will make ongoing decisions about when to progress based on the security of pupils' understanding and their readiness to progress (Maths Guidance, DfE 2020) to the next stage in their learning. We aim to provide support and additional practice for children who are less confident in earlier material to help them consolidate their understanding and provide suitable challenges for those children who grasp concepts more quickly.

To support children in their mathematical understanding we will also use the five big ideas (NCETM 2017) to underpin our teaching for mastery:

> A coherent approach where lessons are broken into small connected steps.
> Use of representations to expose mathematical structure.
> Encouraging mathematical thinking, talk and reasoning.
> Quick and efficient recall of facts and procedures to provide fluency.
> Variation of concepts to promote deeper understanding of mathematical concepts, relationships and structures.



IMPLEMENTATION:

At St. Hugh's our maths curriculum meets the key aims and intent described above using the **White Rose scheme of learning** (transitioning from version 2 to version 3 during the 22/23 academic year). Children study mathematics daily using this scheme, which organises content into blocks to allow depth and breadth of learning within each strand of mathematics through small, connected steps.

Example Y3&4 termly overview:

ST. HUGH'S CATHOLIC PRIMARY VOLUNTARY ACADEMY
MATHS LONG TERM PLANNING YEARLY OVERVIEW

YEAR GROUP(S)	Year 3 & Year 4
CLASS TEACHER	Mr Ballard

	WEEK	1	2	3	4	5	6	7	8	9	10	11	12
Autumn Term	STARTER	Fluent in 5 Year 3 Week 1	Fluent in 5 Year 3 Week 2	Fluent in 5 Year 3 Week 3	Fluent in 5 Year 3 Week 4	Fluent in 5 Year 3 Week 5	Fluent in 5 Year 3 Week 6	Fluent in 5 Year 3 Week 7	Fluent in 5 Year 3 Week 8	Fluent in 5 Year 3 Week 9	Fluent in 5 Year 3 Week 10	Fluent in 5 Year 3 Week 11	Fluent in 5 Year 3 Week 12
	TOPIC YEAR 3	PLACE VALUE				ADDITION AND SUBTRACTION				LENGTH & PERIMETER		MULTIPLICATION & DIVISION	
	TOPIC YEAR 4	PLACE VALUE				ADDITION AND SUBTRACTION				LENGTH & PERIMETER		MULTIPLICATION & DIVISION	

Teachers broadly follow the White Rose suggested curriculum structure overviews although may make adjustments to the time spent on each topic* or, in some instances, the order of blocks in order meet the learning needs of their individual classes. For mixed year groups, like content between year groups has been aligned as far as possible to ensure that content blocks are matching for both year groups. This is shown on our long term planning documents.

As part of our daily maths work, we also include starter tasks at the beginning of each maths lesson to further develop our skills in mathematical fluency through the use of Flashback 4 (White Rose) and/or Fluent in 5 (Third Space Learning) which provide opportunities to support children's understanding through interleaved learning (Year 6 will also cover revision material in starter tasks). These tasks allow children to regularly practice skills and improve their confidence and fluency in addition, subtraction, multiplication and division as well as recapping on core ideas to improve long term retention of concepts and also giving some opportunities for pre-teaching/pre-assessment of forthcoming topics. This regular practice supports quick and efficient recall of facts and procedures to provide fluency.

Starting in the academic year 21/22 and continuing thereafter, EYFS and KS1 classes will also follow the NCETM Mastering Number Programme (see https://www.ncetm.org.uk/maths-hubs-projects/mastering-number/). This is a daily teaching session for all children of 10-15 minutes in addition to their normal maths lesson, which focuses on building firm mathematical foundations through the use of equipment (including rekenreks), models and images.

Children using Rekenreks as part of the NCETM Mastering Number Programme

Use of representations:

In their mathematics learning, children will encounter a wide range of representations to help support their understanding of mathematical structures and patterns. This will include progression through use of concrete objects and manipulatives, moving onto a range of pictorial representations and finally using abstract methodologies. This approach is a fundamental part of maths mastery for all learners.

Mathematical thinking, talk and reasoning:

Maths lessons will give children opportunities to think and talk about maths, supported by mathematical vocabulary and the use of stem sentences to support and encourage all children to communicate their ideas with mathematical precision and clarity. Children will be encouraged to explain conceptual ideas or make generalisations in order to build their understanding and teachers will use deep questioning to illicit understanding (eg. How do you know? What's the same? What's different? What do you notice? Always/Sometimes/Never, Prove it!). Through these skills, children will demonstrate their reasoning both aurally and through written work using relevant knowledge and terminology to solve increasingly complex problems in a systematic and coherent way. A range of reasoning questions and opportunities are provided as part of the White Rose curriculum and, in ...

* As part of our Covid catch-up programme, we have incorporated recap lessons (as shown in White Rose schemes V2) to help children build up their core maths skills so that they are ready to progress as mathematicians. This will be phased into White Rose version 3 during the 2022-2023 academic year.

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IMPLEMENTATION *(continued)* :

… addition, children are given further extended reasoning opportunities through the course of each topic (presented through the 'Tiny Tortoise' character in EYFS/KS1/KS2 & 'Captain Conjecture' in KS2).

Additional Support:

For those children who do require additional support in their mathematics in the first instance, we aim to provide same day/next day interventions led by our ongoing assessments of the children. Beyond this we also use the NCETM mastering number programme (introduced Sept 2021) and Number Sense Maths (introduced Sept 2022) to further support number facts fluency.

EYFS:

At St. Hugh's we recognise the importance of early experiences in maths and how this impacts children's future development, not only in maths but also in their general education. We will support children's development in the six key areas of maths learning (NCETM) providing a range of experiences to support cardinality and counting, comparison, composition, pattern, shape and space and measures (See https://www.ncetm.org.uk/in-the-classroom/early-years/). Practitioners will provide creative and engaging activities for children to ignite their curiosity and enthusiasm for the subject through a range of varied experiences. Concrete manipulatives and pictorial representations will be used and children will be actively encouraged to used mathematical terminology within their understanding with a focus on developing positive attitudes and interest in the subject.

We will also use the White Rose Reception Guidance for teachers to support our implementation of the early learning goals for maths (Sept 2021):

NUMBER

- Have a deep understanding of number to 10, including the composition of each number.
- Subitise (recognise quantities without counting) up to 5.
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

NUMERICAL FACTS

- Verbally count beyond 20, recognising the pattern of the counting system.
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally

IMPACT:

At St. Hugh's, the expectation is that the majority of pupils will move through the mathematics curriculum at broadly the same pace. We aim for each child to be confident in each objective and be able to use this confidence to develop their understanding and to use this to solve varied fluency problems as well as problem solving and reasoning questions. However, decisions about when to progress should be based on the security of pupils' understanding and their readiness to progress. Those children who are not sufficiently fluent in concepts, identified through ongoing assessment, will consolidate understanding through additional practice and support. Similarly, those pupils who grasp concepts rapidly will be encouraged to develop their depth of understanding through their responses to questions, problems and tasks to demonstrate their concept mastery.

The impact of our mathematics curriculum is measured and assessed in the following ways:

Formative Assessment:

Teachers carry out formative assessment through 'Assessment for learning' in each session and feedback is given to children verbally during sessions and, when required, as a follow up at the beginning of the next lesson. Children also make use of self and peer assessment, including through whole class marking sessions (from Y2 upwards) to give them instant feedback on their work and progress. Teachers use a whole class feedback form to record children's attainment and make pertinent comments to

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IMPACT *(continued)* **:**

… support their feedback responses to the class as well as informing ongoing planning. In addition, through 'fluent in five' and/or 'flash back four' starters, children demonstrate their understanding and progress through daily low stakes testing. These methods of assessment ensure that children's individual needs are rapidly identified and additional support or further challenge can be provided in a timely manner.

Similarly, teachers make use of Time Table Rockstars and regular low stakes times tables assessments in order to continually assess and consequently support children in their times tables learning (this is a particular focus in year 2, 3 and 4 as children prepare for the Multiplication Tables Check (MTC) and the times tables understanding they will need to confidently progress in years 5 and 6).

Interventions:
Teachers believe that all children can achieve in maths, with a strong focus on whole class teaching. When prerequisites are not secure, timely interventions will be carried out (which can include the re-cap elements of White Rose Maths to assist Covid catch-up). With the assistance of our whole class feedback and assessment we aim to address issues primarily through pre-teaching or same day/next day intervention where possible. For children who require additional support beyond this normal classroom intervention and where children are working well below the expected standard, teachers will include tailored mathematics targets as part of their individual support plans. Use of the NCETM mastering number programme and Number Sense Maths programmes are also available to further support number facts fluency using small measurable targets.

Summative Assessments:
Children complete end of block assessments for each element of their learning. Results are recorded and used to help identify trends in learning, further inform future planning, allow tailored intervention (if needed) and identify children's target areas. In addition children are formally assessed against National Curriculum objectives in the Autumn, Spring and Summer terms.

Subject monitoring:
We monitor the quality and impact of our mathematics curriculum through targeted learning walks, lesson observations, book scrutiny and pupil interviews. In addition to this, we have regular conversations with staff with regarding progression in maths (including through pupil progress meetings) and to identify CPD needs. Tailored staff meeting input and direct work to support individual staff is put in place in a timely manner as and when required as well as regular inputs into current maths practices in order to ensure that all staff are up to date with best practice.