

Maths - Position Statement

What is Maths like at St Mary's?

At St Marys we believe that maths is for everyone and that learning mathematics should be fun and enjoyable. We base our schemes of work on the *White Rose Maths* model; *WRM* is an ambitious, connected curriculum accessible to all pupils. The SOW is made up of small steps to avoid cognitive overload and focuses on developing deep understanding rather than memorisation. While many curriculum subjects are about sharing knowledge, teaching maths is about building an interconnected understanding. The concepts which pupils need to understand and become skilled in are often highly abstract; we carefully sequence and adapt lessons to help pupils to develop their conceptual understanding of mathematics by using concrete objects, pictorial representations and abstract thinking. We place great emphasis on mathematical language and questioning so pupils can discuss the mathematics they are doing, and to support them to take ideas further. We aim for pupils to become fluent in the fundamentals of mathematics, to be able to reason and to solve problems. Pupils at St Marys develop into mathematical thinkers and develop self-belief, persistence and resilience.

We want all pupils to reach their potential and offer comprehensive intervention and support. Pupils can seek teacher support at break or lunch each day, they have access to *Mathswatch* which has excellent videos and interactive questions. We provide weekly one to one sessions for approximately 15 GCSE pupils and we benefit from a skilled TA in lessons/ withdrawing pupils once a week in year 11. Pupils who have additional SEND needs or who are on our pupil premium register are always prioritised for intervention. We run highly affective GCSE revision classes from January every night of the week with approximately half of year 11 attending, resources are shared on *MS Teams* for those pupils not able to make the session. We run extended revision afternoons before each of the three GCSE papers which are also very popular. Pupils at St Marys are successful, they exceed their FFTD 20 target and the Maths GCSE results are consistently and significantly above national and local averages.

Background and makeup of the Maths Department

The department is comprised of a full-time HOD and four other full-time maths specialist teachers. Next year one colleague will go on Maternity leave and be covered by a NQT who will be supported by our experienced team. Pupils at KS3 have six hours of curriculum time across a two-week timetable. Pupils are set by ability for maths, this ensures that those who need more support can be placed in smaller groups which also benefit from a TA/ TA's. KS3 classes are set in two bands, two groups in one band and 4 in the other due to timetable constraints. Band A contains the 1a and 2a teaching groups, the maths department splits these pupils into a higher and lower ability group. Band B contains 3a, 1b, 2b and 3b teaching groups which we arrange into four sets (1 to 4, 1 being the top set). Pupils in Year 10 are placed in one of six sets in two bands: sets 1-3 study the Higher tier in A band (seven hours a fortnight) and sets 4-6 study the Foundation tier in B band (eight hours a fortnight). In year 11, all pupils have eight hours of maths per fortnight.

How the curriculum is sequenced

To learn mathematics effectively, some things have to be learned before others, eg. place value needs to be understood before working with addition and subtraction, addition needs to be learnt before looking at multiplication (as a model of repeated addition). Our **KS3 SOW** (years 7-9) focuses on acquiring these key number skills and revisiting them regularly in context of other areas of maths such as place value to find the median, addition to find the perimeter etc. , this allows pupils to have a wide variety of mathematical experiences each term and year. In year 7 we start with algebra as this is key to the secondary curriculum as well as being comparatively new for pupils. Again we carefully order the skills – understanding notation, one-step equations, then two-step equations etc., revisiting the concepts in other areas of the curriculum and making sure that topics are covered so pupils experience variety as well as consolidation. We understand the importance of regularly revisiting and recalling content, each lesson begins with a ‘Flashback’ starter, teachers skilfully question pupils and encourage them to make links to other areas of the curriculum, and termly assessments incorporate previous learning as well as the small steps from that term. All classes follow the same SOW which is written based on the **WRM** secondary progression map. The **WRM** resources link to the KS3 and KS4 National Curriculum and allow teachers to see which topics pupils have previously covered and where they will be revisited and extended in the future. It also helps teachers and pupils to see the links between topics, for example, the block on Multiplicative relationships covers best buys, similarity and currency conversion. Each class teacher carefully adapts the SOW for their pupils and colleagues at St Marys routinely co-plan and share ideas and best practice on a regular basis. At **KS4** pupils will either study for the Foundation or Higher tier exam and will follow a SOW based on one written by our exam board (**Edexcel**). Class teachers now have greater flexibility in the order in which they deliver the objectives and the resources that they use. Teachers continue to incorporate the principles of mastery and work together with colleagues to ensure lessons are of the highest quality.

How pupils are assessed

In maths, we assess pupils’ progress formatively in lessons with regular use of mini white boards, skilful questioning, pair and group activities where pupils are invited to share their ideas with the class and with low stakes quizzes or open book check in tasks. Gaps in learning are immediately addressed. Formative assessment also occurs through homework and revision assignments when pupils demonstrate the ability to apply their knowledge and understanding more independently.

We measure the impact of the curriculum at the end of each term, with tests written using **WRM** resources at KS3 or **Edexcel** past exam questions at KS4. Papers are marked using agreed mark schemes and we moderate to ensure consistency, the department benefits from having several experienced **Edexcel** exam markers. Teachers adapt future lessons to respond to any areas of difficulty or misunderstanding. Pupils always complete a reflection process in which they complete corrections and identify areas that are not yet mastered; the class teacher will then set an assignment designed to support pupils with any gaps to encourage them to take responsibility for their own learning. Pupils understand their progress against previous assessments and how they are progressing towards future targets (namely their end of year target in years 7-10 and GCSE target in year 11, based on FFTD20). Homework, tests and reflection sheets are all in students ‘assessment books’.

Approaches to pedagogy (Teaching and Learning)

The mathematics teaching team are passionate, skilled and dedicated practitioners. Teachers ensure that pupils feel welcome, supported and safe to 'have a go'; mistakes are framed as learning opportunities which helps to grow a positive growth mindset. We have ambitious expectations for all; pupils are encouraged to take pride in their work, to try their best in every task and to ensure their behaviour and attitude reflect the high standards expected of St Marys pupils. The maths department ensure that pupils are engaged and challenged and that the SOW is adapted to suit the needs of each class. Differentiation is delivered by, for example: varying the degree of support provided, using enabling and extending questions, and providing or asking for alternative representations (CPA approach). Teachers use careful questioning to encourage mathematical thinking and to identify and address misconceptions. Conceptual and procedural maths taught together, pupils should know 'why' as well as knowing 'that' and knowing 'how'. Pupils in all year groups are regularly given the opportunity to solve problems and apply their knowledge by completing GCSE questions; giving appropriately challenging questions to all pupils from the beginning demystifies the GCSE exams and builds confidence as well as essential skills.

Wider enrichment and cultural capital opportunities in Maths

We want all pupils to develop a love of maths! We have a popular weekly challenge board in the maths area which is also shared with pupils in form time. We take pupils to competitions such as Maths Picnics and Feasts organised by the *Advance Mathematics Support Programme*. We take pupils to workshops at local Universities and enter them for *UKMT* competitions. We look at ways of celebrating maths during the year such as *Pi* and *National Numeracy Day*, as well as celebrating other cultures by exploring other number systems, highlighting the contributions of mathematicians from across the world or celebrating festivals such as using mandarin numbers in a starter challenge to celebrate the Chinese New Year. Many of our pupils continue with their maths studies; this year we have started an 'A Level Maths' club to support students wishing to study Maths / Further maths at A Level. In 2023 we are introducing Level 2 Certificate in Further mathematics for our most able mathematicians.