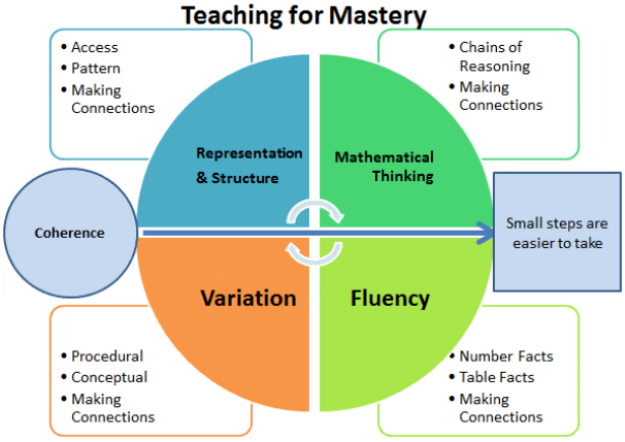
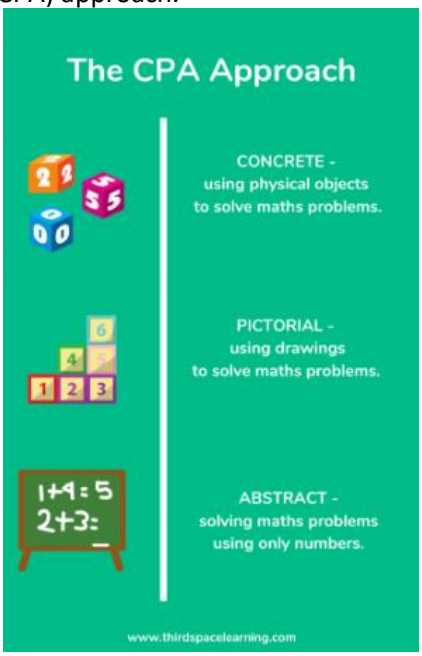
Curriculum Subject Policy
Maths

Subject vision statement

Maths is a core curriculum subject and life skill, meaning that it is seen as knowledge which is essential to a child's future success both in education and in adult life. At Oak Green School, we teach children to foster a belief in themselves that they will be proficient and passionate mathematicians by making maths an engaging and fun subject. We want every child to be fluent in their knowledge of mathematical facts and vocabulary (for example: number bonds; multiplication tables; mathematical facts such as how many grams in a kilogram and days of the week); confident in their use of mental maths and efficient at using both informal and standard written methods for the four rules of number. We want children to be able to master mathematical concepts so that they can use their understanding of number and calculation skills to solve every day mathematical problems.



We want our children to recognise and understand relationships and patterns in numbers in the world around them. We expect mathematics to be utilised as a tool beyond the daily mathematics lessons and beyond the classroom. In addition to this, we want children to have a secure understanding of a wider range of mathematical topics such as fractions, measure and geometry and to use their knowledge and skills to reason and problem solve. In order for all children to be engaged in their maths learning we will teach them to be brave, inquisitive and independent learners who feel good about themselves as mathematicians. We aim to ensure we achieve this through our teaching using the White Rose Maths Mastery schemes of learning as a planning framework; adapting these to suit the needs of our children and following the concrete, pictorial, abstract (CPA) approach.



Teaching and Learning

Early Years Foundation Stage (EYFS)

Children in EYFS are taught maths using White Rose Maths as a planning framework, to develop a deep understanding of the Early Learning Goals. The teaching of maths in the EYFS involves fostering children's curiosity in and passion for maths with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shapes, spaces, and measurement.

Mathematics has a high profile in the Early Years learning environment and connections are drawn between maths and everyday life in both indoor and outdoor learning. The White Rose Maths scheme provides a clear and concise coverage of all required elements. A wide range of hands on learning and manipulatives are used to help children understand numbers and what they mean.

Pupils who grasp concepts rapidly will be challenged through having access to a wider variety of problems, whilst those children who are not sufficiently fluent in their understanding will be given opportunities to further develop their understanding before moving on through intervention in class with teachers and also in small group settings.

Key Stage 1 (KS1)

In KS1 planning for the daily 45 minute mathematics lesson is based closely on the White Rose Maths framework; teaching concepts over a block of learning in order to gain problem solving and mastery skills. This is fully aligned to the requirements of the National Curriculum.

With a focus on teaching maths for mastery, the White Rose Maths approach to mathematics teaches pupils to understand maths in stages, beginning with concrete (Numicon, counters, Base 10, number disks etc.), then moving to pictorial (solving problems where pictures or diagrams are involved), and finally working in the abstract (where numbers represent symbolic values). Through this process, children learn numerous strategies to work with numbers and build understanding. Having developed an understanding of a concept and related mathematical processes, children are challenged to secure fluency in a particular objective through a variety of effectively sequenced questions and learning experiences. Once fluency is secured, children progress to reasoning and longer problem solving investigations.

Each daily mathematics lesson begins with developing the children's knowledge of maths 'facts', such as skip counting , number bonds and table facts. The teaching of these is in keeping with age related National Curriculum expectations and follows a specific learning cycle.

In Year 2, each child takes a weekly timetable test (Cracking Times Tables) starting at Level 1 with 10 questions. As they complete the test accurately 3 times, they move onto the next level where more number facts are introduced. Some students in Year 1 begin this process in the Spring term as their teacher deems fit.

In KS1 we supplement our curriculum with Numbots, Time Tables Rockstars and White Rose One Minute Maths for online blended learning; which we encourage the children to access as part of their home learning tasks. These resources are a means for pupils to practice objectives taught in class and to develop good rapid recall skills.

Lower Key Stage 2 (LKS2)

The principal focus of mathematics teaching in LKS2 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 12 multiplication table and show precision and fluency in their work. Children should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2 (UKS2)
The principal focus of mathematics teaching in UKS2 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, children 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.

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.

In KS2 we supplement our curriculum with Time Tables Rockstars for online blended learning; which we encourage the children to access as part of their home learning tasks. These resources are a means for pupils to practice objectives taught in class and to develop good rapid recall skills. Children also continue to complete Cracking Times Tables tests weekly.

Assessment
Teachers use informal assessment prior to a unit of work to develop a secure understanding of pupils' starting points. Daily ongoing formative assessment enables teachers to adjust plans and target teaching to address specific misconceptions and next steps. Assessment includes marking, verbal feedback to guide progress, recorded responses and observations. Pupils are to self-assess making judgements about how they can improve their mathematical knowledge, skills, understanding and efficiency. For each pupil, progress is discussed and shared at parent consultations.

In EYFS children are measured at the end of Foundation stage against the Early Learning goals criteria for the Mathematics specific area of development and are graded as emerging, have met the goals for number and shape, space and measure.

Years 2 and 6 complete the national tests (SATs) in May. From year 1 to year 6, children are assessed termly using the PiXL Maths assessments to check for progress and skills and knowledge retention.

Year 4 take the Multiplication Tables Check (MTC) in June. This assesses their knowledge of times tables up to 12x12 and identifies any possible gaps that need to be addressed as they progress.

Equal opportunities/ Inclusion
All children are provided with equal access to the mathematics curriculum. We aim to provide suitable learning opportunities regardless of gender, ethnicity or home background. As outlined in the National Curriculum, it is expected that, *"the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage."* Those children who are not able to access age related expectations, may work on curriculum statements from the year group appropriate to their ability or have carefully adapted learning in order to meet their needs. These pupils are given additional support. This support could be through pre-teaching and/or in-class assistance by a teacher or member of support staff. Support staff and teachers make effective use of the interaction scaffolding framework to encourage independence.

In accordance with the National Curriculum, "*Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on."* This 'consolidation' can form the basis for in class scaffolding and also for participation in intervention groups. Additional support can be given through small after school tuition sessions. For some children, mathematics targets also form part of their Individual Provision Map (IPM). For children who are new to English, mathematical language is specifically taught.

Those pupils who develop fluency at a faster rate and have applied this to the reasoning and problem solving opportunities outlined in the White Rose Mastery Scheme, are encouraged to deepen their understanding through more challenging longer problems e.g. by Nrich (http://nrich.maths.org/). Extra-curricular opportunities through clubs and through external events which motivate and broaden the experiences of more able mathematicians are provided where possible.

The role of the subject leader, monitoring standards and review

This policy will be monitored by the school leadership team and reviewed biannually, or as new legislation determines, by the Governing Body. The curriculum leader, alongside the Senior Leadership Team (SLT), is responsible for monitoring and evaluating curriculum progress. This is done through learning walks, book scrutiny, planning scrutiny, lesson observations, pupil interviews, staff discussions and audit of resources. They will ensure that all staff have access to high quality professional development and resources in order to be able to teach effective maths lessons. They will also share new and up to date research and findings in order to further staff knowledge through sources such as the Ofsted maths subject review.

To be read with (other policies):

- Curriculum Policy
- Teaching and Learning Policy
- Calculation Policy
- Marking & Feedback Policy