



Mathematics in Year 1 to Year 6

Teaching for Mastery

We embrace the National Centre for Excellence in the Teaching of Mathematics' (NCETM's) definition of mastery, and aim to 'teach for mastery' every lesson. Pupils experience the whole-class approach, and while some pupils spend longer on a particular concept (through intervention or additional lessons,) others will much reach deeper levels of understanding:

'Mastering maths means pupils acquire a deep, long-term, secure and adaptable understanding of the subject. The phrase 'teaching for mastery' describes the best elements of classroom practice and school organisation that combine to give pupils the best chances of mastering maths. Achieving mastery means acquiring a solid enough understanding of the maths that's been taught to enable pupils to move onto more advanced material.'

(NCETM)

Mathematics Lessons

Mathematics lessons are rooted in the National Curriculum. They are clearly structured and sequenced to ensure every child masters mathematical concepts securely and deeply. We use the 'Power Maths' programme, designed by Pearson Education, 'to spark curiosity and excitement and nurture confidence in maths.' Power Maths provides the core teaching and learning material, but we also adapt and supplement this resource to meet the specific learning needs of our pupils.

Pupils begin each lesson with a 'Power Up' activity, to support fluency in key number facts and to revisit previous learning, or practise skills necessary for the next sequence of lessons. It is a valuable tool for ongoing teacher assessment, and provides regular practice for pupils to embed crucial mathematical skills.

Following the Power Up, pupils explore real life problems in a teacher-led interactive session that introduces the lesson objective for that day. As the lesson progresses, pupils are encouraged to work together, to explore and discuss new methods and concepts, and to reason and explain their findings in detail. They use visual representations and practical equipment to support their learning as they work through the increasingly challenging and progressive questions provided by the teacher. Lessons are often busy, exciting and energetic places to be as pupils discover and learn together.

All pupils have an opportunity to work independently too when they move on to work in their individual practice books. The practice books reinforce methods taught in collaborative learning, and use various approaches to check pupils have understood a concept fully. Throughout the lesson, pupils receive teacher feedback, either individually or as a whole class. Misconceptions are addressed quickly. Feedback is considered a powerful and effective teaching tool and is a key feature of our mathematics teaching and learning. Pupils understand that making mistakes and learning from them is a valuable part of the learning process, and do so in a safe, supportive and respectful learning environment.



At the end of the lesson, all pupils are asked to complete a written 'Reflect' in response to a question based on the lesson objective for that day. This is another opportunity for pupils to show their understanding of the lesson taught, and provides an additional assessment tool for the teacher.

Cross Curricular Mathematics

Pupils use their mathematical skills throughout the curriculum and in all year groups, whether interpreting and presenting data in science, or looking at more complex geometrical patterns and theories as part of their study of the Ancient Greeks; mathematics is an integral part of the William Gilbert curriculum. Teachers plan and sequence lessons carefully, to give pupils an opportunity to apply their skills in different contexts, and by doing so, provide pupils with rich learning experiences that give mathematics meaning, making it real and purposeful.

Maths Whizz



As a school, we subscribe to 'Maths Whizz', a programme developed by Whizz Education. Each pupil has an individual login to access bespoke online maths tuition both at school and at home. Lessons and challenges are presented in a fun, engaging 'gaming' format and pupils are rewarded with red and blue gems. Blue gems are awarded when lessons are completed. Red gems are awarded when pupils have completed topic challenges. Lessons present new learning and topic challenges revisit prior learning.

Continuous assessment is used to ensure pupils receive appropriate support, and progress is reported back to the class teacher in detail. Teachers can drill down to identify cohort and pupil strengths and weaknesses and adjust classroom teaching to meet pupil needs. In addition, teachers can also use Maths Whizz to support and extend learning in lessons by setting specific content for selected pupils.



Maths Whizz is used as a home learning tool and all pupils are expected to achieve three blue gems per week as homework, to complement their learning in maths lessons. Pupils who achieve three blue gems (new learning) and three red gems (revision) in a week earn a place in the online 'Hall of Fame.'

William Gilbert School works closely with Whizz Education. Pupils at William Gilbert formed part of a working party with software developers from Whizz Education, and were instrumental in the development of red gems as a way of embedding prior learning. William Gilbert pupils are often ranked in the top 10 UK schools for progress and achievement on Maths Whizz. As a school, we achieved 'Distinguished School' status within two years of subscribing to Maths Whizz.

Mathematical Exploration

At William Gilbert, we provide as many opportunities for pupils to experience and explore mathematical concepts as possible. We recognise the importance of play and exploration in developing a pupil's understanding of maths, and to this end we provide mathematical equipment to 'play' with at breaktimes, such as magnetic Polydron and carefully chosen board games and problem-solving activities to develop mathematical skills.

Displays and working walls, both inside school and on the playground, are created to support pupils' mathematical learning further.

Chess Club

The relationship between chess and maths has long been recognised, and we have a thriving chess club at William Gilbert. Spatial reasoning, visual memory, analysis, geometry and higher order thinking and problem-solving skills are used and developed when playing chess. Pupils in Key Stage 2 are eligible to join, and often enjoy four years of chess playing before moving onto secondary school.



The Delancey National Schools Chess Competition

For a number of years, William Gilbert has entered and taken part in The Delancey National Schools Chess Competition, a competition that begins at school level and provides an opportunity for successful pupils to compete with the very best chess players at a national level. It is very popular, with around 60 Key Stage 2 pupils taking part in the school level part of competition every year. Many William Gilbert pupils go on to compete at the local and regional levels.

Problem Solving Days

Companies such as 'The Happy Puzzle Company' or 'The Problem Solving Company' are regular visitors to William Gilbert, providing mathematical workshops for our pupils. These enrichment opportunities provide pupils with challenging mathematical tasks that improve their personal learning and thinking skills, whilst building resilience and boosting confidence. Pupils love working with the large 3D equipment brought in by the companies above, and also enjoy working in teams to solve the puzzles presented by the maths specialists. We work closely with the providers to ensure that the workshops meet the needs of our pupils in every year group.

Bridge Club

William Gilbert School has links with Allestree Bridge Club. Bridge is a card game fundamentally grounded in mathematics, from simple addition, subtraction, multiplication and division, to the more complex functions of calculating odds and percentages. In addition, it gives our Key Stage 2 pupils an opportunity to follow rules, reason sequentially and problem solve.