

Teaching and Learning

The teaching of Mathematics equips pupils with useful and important skills to understand the world around them, these skills include logical reasoning, problem solving and the ability to think in abstract ways. Maths is important in everyday life, questions that we continually ask the children include – ‘how can we use Mathematics in our day to day life?’ ‘Can you think of something that we don’t use Mathematics for?’ With these points in mind, we endeavour to ensure that children develop a positive and enthusiastic attitude towards Mathematics.

The National Curriculum Programme of Study for Mathematics describes what students must learn in each year group. This, along with the White Rose scheme of work that we use to support our planning of Mathematics at Sir Henry Fermor, ensures continuity and progression throughout the year groups as well as high expectations. The White Rose scheme ensures key concepts are being covered and new concepts are being taught in a systematic way. We are committed to ensuring children are given the opportunities to achieve mastery through plenty of problem solving and reasoning opportunities. This emphasis on investigation develops children’s mathematical thinking beyond the basics and pushes them to think deeper.

As well as teaching number skills and shape, space and measure we have a real focus on fluency and accuracy in times tables. This starts from EYFS and year 1, focusing on step counting. Times Tables Rockstars is used at Sir Henry Fermor School in all classrooms from Year 2 to Year 6. Teachers will practise times tables with their class at least twice a week and communicate effectively with parents as to which times tables their child should focus on, as all children from Year 2 upwards are given their own Times Tables Rockstars account. This includes multiplication and division.

The Fermor Four in Maths

<u>Relevance</u> Students should be able to explain how Mathematics will help them in the real world and be able to link concepts to their daily life. Students should be able to transfer the skills they have learnt into other subjects.	<u>Engagement</u> Students should be ready to listen and learn in lessons, when using manipulatives and when engaging in exciting events like Number Day. Students can show their engagement in Maths by asking questions, working to make connections to other learning and by continually striving to improve work.
<u>Questioning</u> Students should continually be asking questions throughout Maths learning. A range of questions should be seen throughout Maths lessons, and use questioning to stimulate Mathematical thinking. Asking the children how they arrived at the solution to see if they securely understand the concept.	<u>Articulate</u> As students become versed in mathematical skills and language, they should be able to articulate their thinking and how they have arrived at an answer. Some could begin to take on ‘lead learner’ roles to be able to show the depth of their knowledge by explaining concepts to other children.

Approaches and Methods

Teachers plan their Maths lessons using the White Rose scheme of learning. They may supplement this with additional activities to further enrich learning opportunities and help the children to reach greater levels of understanding. The White Rose scheme enables Maths to be taught in a systematic way, making sure the lessons and knowledge build upon one another.

At Sir Henry Fermor we use a mastery flow model of learning (which is colour coded) to help the children demonstrate their progress and growth in mathematical fluency and confidence. Children will progress through the mastery flow accessing tasks as follows:

SHOW	Manipulative based learning tasks that use visuals and allow children to physically connect with the learning and to introduce skills.
DO	Learning tasks to help build fluency and for children to show their understanding of the processes used with that particular skill.
THINK	A shorter task where the children have to think more deeply about their answers. (for example a true or false style question)
EXPLAIN	A task where children have to fully explain or prove their answers. Questions are linked to more than 1 objective in a familiar context and tend to include links to previous learning.
SOLVE	A problem solving task that shows the children's in depth understanding of the learning concept. These activities are designed to present greater challenge and to involve more abstract thinking.

Students are provided with a variety of opportunities to develop and extend their Mathematical skills including: group work, paired work, whole class teaching and practical work. During Maths lessons students are engaged in the development of mental strategies, written methods, practical work, use of manipulatives, problem solving, reasoning and discussion.

Cross Curricular Links

Mathematics naturally lends itself to a host of cross-curricular links. The use of word problems, reading and answering builds upon vital Literacy skills and encourages children to write sentences in their Maths book, not just their English book, which also provides useful handwriting practise. Physical education is a great way of using mathematical skills, like timing activities, measuring out an area, using coordinates. Map skills and coordinate work in geography has elements of Mathematical skill. Knowing numbers and ascending and descending orders for dates and timelines in history. Mathematical knowledge on 3D and 2D shape will support art and DT lessons and projects as children can apply this knowledge to pictures or models they create. These links and connections should be made wherever possible to enrich students' learning.

Health & Safety

Care is taken when using certain mathematical equipment in class, like compasses. Basic hygiene procedures are followed when using manipulatives.

Assessment

Throughout maths lessons there are regular class discussions, low stakes quizzes, opportunities for individuals to share ideas and for children to work in pairs to discuss and develop their knowledge. This provides vital insight for teachers to informally assess the progress of the class enabling them to make informed decisions about lessons which may need adapting to address a misconception that has arisen, or to consider an area in greater depth if appropriate. It also provides opportunity for teachers to ensure that understanding is secured and retained.

More formal assessment is completed through White Rose End of Unit tests which may be completed at the end of a unit of work. Times Table Rock Stars resources are also used to assess progress in times tables recall.

General mathematical progress is also assessed at key points during the year in-line with the school's assessment programme.

Inclusion

No student should be left behind in the study of mathematics. Mathematical concepts can be condensed or altered slightly, so that children are accessing similar work but in a way that they understand. Children who are missing basic number skills, like number recognition or number bonds should be catered for carefully in class by considering their missing prior knowledge. However, mathematical concepts and skills can also be delved into and pushed deeper for

learners working beyond Age Related Expectations. Suitable challenges should be provided within lessons so that all children are catered for and all needs of the class are being met. Teachers should differentiate work to a level which allows all learners to understand the material, grasp the concepts being taught, and thrive with new learning.

Teachers at Sir Henry Fermor ensure that they provide opportunities for all children regardless of race, gender, or disability.

The Role of Parents

Parental involvement is actively encouraged at Sir Henry Fermor. Parents can be involved in their child's development in maths. When it is appropriate, tasks may be sent home for the child and parent to work on together, thereby involving the parent in the child's learning.