



Mathematics

OUR CORE AIM FOR MATHEMATICS

For our children to become confident mathematicians, not just to be children who do maths; they will be mathematicians, who are fluent with their subject knowledge and can identify the maths required to resolve a problem, by making secure links between different mathematical concepts.

What do maths lessons look like at Swiss Gardens Primary School?

In the EYFS, our children have daily maths inputs, as well as learning about maths within their learning environment. Our focus is on core conceptual growth and we develop their maths learning primarily through applying maths skills through play and exploration. Our teachers understand that during EYFS, they are creating the foundation building blocks for mathematical learning in KS1 and KS2.

In Key Stage One, the children have 5 maths lessons per week, each lasting 45 to 60 minutes. During a lesson, the children complete their core maths learning for the day, and often takes on the form of 'I do, we do, you do'. Lessons usually consist of time spent on the carpet, before working at tables in groups. Children will use manipulatives to help secure their understanding of concepts and are encouraged to seek out resources they could use. Following the strategy of 'maths mastery' means that all children should be able to tackle the same challenge, but with differing levels of support, scaffolding or stretching. Some children may be supported by an adult. Children will additionally 'bump into maths', e.g. learning the days of the week, or the months of the year, or developing comparative language such as 'shorter than', 'longer than', etc.

Key Stage Two continues with a similar structure to that of Key Stage One, ensuring a smooth transition between the Key Stages. Again, children will use manipulatives and a variety of representations to help them become more secure in their understanding. The 'maths mastery' strategy is used to great effect to enable all children to achieve. Some pre-teaching before the lesson helps those who are least confident to access the learning. Deeper challenges are given to those who are able to complete the main challenge during the lesson. This could involve more complex problem solving, using their reasoning skills to explain, or creating their own problems.

At Key Stage One and Two, aspects of fluency, reasoning and problem-solving will underpin all mathematical learning. We also try to use active learning and the outside environment as much as possible. At every stage throughout the school, children are enthusiastic and engaged with their maths learning.

During the week, children from Year 1-6 will also participate in 'Quick Maths' sessions. The purpose of these is to increase fluency and accuracy in solving number problems and making links between the 4 mathematical operations (addition, subtraction, multiplication and division). This will give children a more solid foundation as they progress throughout the school. Children will explore key fluency elements such as single-digit addition, skip counting and multiplication tables. They will make connections, reflect and consolidate before moving on.

The children will also participate in Numbots and Times Table Rock Stars. These are online programs that focus on learning number facts and times tables respectively.

In maths lessons, we would expect any observers to see (in no particular order!)

- Children's enjoyment of the subject, as they show eagerness to rise to each challenge
- Learning in line with the national curriculum expectations for each age group
- Aspects of fluency, reasoning and problem-solving
- Teachers using White Rose, NCETM and Nrich as powerful resources
- Use of manipulatives
- Small steps of learning to enable good rates of progress through a CPA approach (concrete, pictorial, abstract)
- A competitive spirit
- Confidence
- Resilience
- Perseverance
- Children being supported via the adults' modelling and questioning
- Success and achievement
- Independence
- Pride
- Conversations and oracy practice
- The raising of questions
- The use of the maths working wall to support each child's growth of learning

What does the children's work look like in Maths?

At Swiss Gardens, not all work is recorded in books during maths lessons. Dialogue, informal recordings on whiteboards, and the use of practical equipment to solve or explain mathematical thinking all have their place. Not everything is recorded in a formal maths book.

Most work, however, is recorded in maths books in order for children to show individual independence with the subject. Children are expected to record their maths learning with pride but it is perfectly acceptable for neat crossings out to occur – after all, we all make mistakes or change our approaches to improve on our ideas; reviewing and changing our methods are vital aspects of being mathematicians. Children's recordings will reflect varied representations (e.g. pictorial such as part-whole images, bar models, annotations, formal recordings or written methods) and will often be supported by explanations (either written, or verbal at a one-to-one or whole class level).

The 'Quick Maths' sessions are recorded separately in a jotter or on a whiteboard depending on the lesson, and will consist of informal notes and formal written methods. The children mark this work themselves and annotate or identify where they have found a calculation challenging.

How do the teachers plan for Maths?

First and foremost, the teachers are always striving to deliver – and for children to achieve – age appropriate expectations, adhering to national curriculum requirements in conjunction with the school's maths progression document.

At Swiss Gardens, we follow the White Rose Schemes of Learning. This provides a spiralled curriculum where children revisit mathematical concepts in order to consolidate their learning. It is designed to provide children with a solid foundation in mathematics, where children gain a deep understanding and enjoy solving problems. White Rose Schemes of Learning break down what children should learn during each week of each term. Teachers use the 'small steps' progression documents to plan each unit of work. This may be in the form of a written weekly plan, or detailed ActivInspire flipcharts, that are used with the children during lessons. One teacher from each year group takes responsibility for the planning of maths. However, the year team meet weekly to agree the short term plan, and regularly discuss any adaptations that are needed on the basis of the children's need, where they need further

work or acceleration. Teachers will adapt the amount of time allocated to each unit depending on the needs of the children. When needed, the White Rose resources will also be supplemented with resources from a variety of sources, including Topmarks, Twinkl, Classroom Secrets, and Third Space Learning.

How does the school know whether children are making good progress and attaining high standards in Maths?

Teachers formatively evaluate the progress of children all the time, and are constantly adapting and reacting within lessons and over time. We use end-of-unit assessments to support our judgements and match against the age-related expectations for the year. This enables teachers to provide early interventions or further challenge at the point of learning. At Swiss Gardens, we also use termly standardised assessments from Maths.co.uk to further monitor progress. The maths subject lead, phase leaders and senior leaders monitor provision, progress and attainment for all ages and all groups of children, via planning, lesson observations, book looks, pupil interviews, teacher interviews, data collection and analysis, at regular intervals.

What happens if a child is finding maths difficult?

We use a “mastery” approach to teaching mathematics, which means we strive for the majority of children to attain the same age-related expected standards of learning at the same rate as each other. However, some children find maths learning more challenging than others. When this is the situation, the difficulties are identified and addressed within the lesson (e.g. through additional modelling from the teacher or teaching assistant, through repetition of the learning that has occurred within the lesson – to reinforce language/concepts/methods, through smaller steps of instruction, through the provision of extra scaffolding etc.). Some children with specific learning needs may need alternative provision; this will be set out in their learning provision map and tasks will be suitably differentiated. Our end of unit assessment also allows us to implement interventions for specific groups of identified children in order for them to become confident with those mathematical concepts they have found more challenging.

What happens if a child is achieving very high standards in Maths?

Nationally, it is an expectation that children who are achieving very high standards within their year group’s maths curriculum should be extended not by pushing through higher year groups’ knowledge and concepts, but by deepening their learning with extended, more challenging questioning and, in particular, reasoning opportunities. This is an approach that we firmly agree with and apply to our maths teaching at Swiss Gardens. We also expect children with this capacity to further enhance their written and verbal explanations to support their reasoning in mathematical terms. We aim to support high level understanding by ensuring that children are given challenges where their thinking and approach is being pushed and they are developing high quality reasoning skills.

How do opportunities extend beyond each year group’s lessons?

When opportunities arise, we grab them with eagerness – e.g. attending local and county wide competitions and opportunities in maths. Every year a group of high attainers from Upper Key Stage 2 take part in the maths challenge held at Christ’s Hospital or Windlesham Schools. Our children attending from Year 5 and 6 have achieved very well in these opportunities, performing highly against top fee-paying schools in Sussex and Surrey.

Is there anything else parents can do to support children’s learning in maths?

Working alongside your child in maths is always beneficial. Please look at our calculation progression to support the methods used in school. Encouraging children to see the use of maths in the real world,

from personal finance to shopping and cooking, and even the sequences of numbers on houses, reinforces the importance of mathematical learning.

In Key Stage One, encouraging your child to develop their number bond knowledge to 10 and 20 and working out problems mentally is really useful, as well as making connections, such as “if I know $4+2=6$ then I know $2+4=6$ and $6-2=4$ and $6-4=2$ ”. These connections can then be applied to larger numbers. Also involve your child with Numbots, an online program which aims to support fluency with number recognition and number bonds.

In Key Stage Two, we strongly recommend that you involve your child with Times Table Rock Stars and encourage them to beat their own score and speed. Learning times tables is very important for many different mathematical concepts, and a skill for life. Also, making connections between different mathematical concepts, and applying their skills to the real world is essential, e.g. making cakes, weighing ingredients, calculating totals and change, telling the time, etc.

There are some websites that can help with maths learning.

<https://home.oxfordowl.co.uk/maths/>

<https://www.bbc.co.uk/bitesize/subjects/z6vg9j6>

<https://ttrockstars.com/>

<https://numbots.com/>

<https://www.topmarks.co.uk/>

Who to contact

If you have any questions you would like to ask about maths, please do not hesitate to contact your child's class teacher or the maths subject lead, Miss Woodward, via the school office (office@sgprimary.co.uk)