MAY 2021

Mathematics Policy

POLICY

Swansfield Park
Primary School

The National Curriculum states that:

"Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject."

Contents

At Swansfield Park Primary School, our intention is to provide a mathematics curriculum that is ambitious, accessible to all and maximises the development of every child's ability and academic achievement. To achieve this, all children have equal access to a curriculum that is coherently planned and sequenced through a series of small, sequential steps and it offers both breadth and depth to all learners. It is a curriculum that delivers creative and engaging lessons underpinned by the essential elements of our bespoke mastery teaching and learning approach.

Through our mathematics curriculum, we want children to make rich connections between mathematical ideas, developing fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. We also strive for all of our children to be able to confidently apply their mathematical knowledge and understanding to other subject areas.

We want the children of Swansfield Park to realise that mathematics has been developed over centuries, providing the solution to some of history's most intriguing problems. We want them to know that it is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy as well as many forms of employment. Most importantly however, we want the children of Swansfield Park Primary School to have a sense of enjoyment and curiosity about mathematics as this we believe will enable them to know more and remember more.

Aims

In line with the aims of the National Curriculum for mathematics, at Swansfield Park Primary School, we aim to ensure that we:

- Support our children to become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time.
- Promote children's ability to **reason mathematically** and make connections by following a line of enquiry and having routine opportunities to discuss their thinking and understanding.
- Provide our children with routine opportunities to **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication.
- Promote children's curiosity and enable them to safely risk take, learning from first-hand experiences both inside and outside of the classroom.
- Support the development of our children's mathematical knowledge and understanding through the use of a CPA approach (concrete, pictorial, abstract).
- Enable our children to develop conceptual understanding, recall of number facts and patterns, applying them both rapidly and accurately.
- Enable our children to gain deep and sustainable learning in mathematics which they are then able to confidently apply to a range of real life contexts.
- Provide our children with opportunities to demonstrate 'mastery' through well planned, imaginative and simulating cross-curricular links..

Planning

At Swansfield Park Primary School, we believe that children learn best when learning activities are well planned, stimulating and challenging, ensuring progress in the long, medium and short term.

Planning is undertaken on three levels:

Long term planning:

Long term panning is taken from the White Rose maths hub overviews and used to inform medium term planning from Year 1 to Year 6. The White Rose material is used as a guidance tool in order to pace out coverage of the curriculum throughout the year. Teachers are encouraged to use professional discretion when deciding how long is needed on particular curriculum areas as well as when deciding at what point within the academic year objectives should be taught. Work undertaken within the Foundation Stage is led by the requirements of the Early Years Foundation Stage statutory framework and guided by the

Development Matters document. In Reception, the White Rose schemes of learning are also used as a tool to support the planning and delivery of mathematics.

A set planning pro forma is used by all staff when completing long term planning.

Medium term planning:

Medium term planning is carried out half-termly. Teachers work in teams to identify and select objectives from either the White Rose Maths Hub overviews or the Early Years Development Matters document as guidance. Standalone maths lessons as well as cross-curricular opportunities to both reinforce and embed children's mathematical learning are identified in the medium term planning. In their teams, teachers are responsible for generating medium term planning overviews using the schools set pro forma and ensuring that these are made available on the school website.

Alongside medium term planning, teachers in Key Stage 1 and 2 are also responsible for generating an overview of 'I Can' statements for each of the objectives due to be taught. These are presented in the form of a WILMA grid in children's maths books.

Short term planning:

Short term planning is carried out on a weekly basis. Individual teachers are responsible for the planning of thoughtful, stimulating weekly lessons for their class. Through these lessons, it is expected that children will be introduced to objectives from the appropriate programme of study as well as have the opportunity to secure their mathematical understanding of them through routine problem solving and reasoning challenges. Standalone arithmetic lessons are also planned for on a weekly basis by class teachers to ensure that children become fluent in the four basic mathematical operations.

The school does not have a set pro forma for short term planning but it is expected that staff will detail the intended learning of each lesson, the teaching activities to be used as well as the learning outcomes.

For formal lesson observations, there is the expectation that staff use the school's lesson observation pro forma when planning their individual lessons. It is the responsibility of the class teacher to ensure that this document is shared with the relevant individuals prior to the observed lesson.

Planning across the curriculum

At Swansfield Park Primary School, we also believe that maths contributes to many other subject areas, and that it is important that our children are provided with opportunities to apply and use maths in real-life contexts. By approaching the planning process in a cross-curricular manner, teachers are routinely identifying opportunities for our children to apply, and subsequently deepen their mathematical knowledge and understanding as well as develop their mathematical fluency beyond the standalone maths lesson.

Teaching and Learning Strategies

At Swansfield Park Primary School, we use a variety of age appropriate teaching strategies to cater for the varied learning styles of our children.

In the Early Years, we recognise that creativity within the indoor and outdoor environment plays a significant role in mathematical thinking and understanding. In addition to daily, adult- led activities, a selection of games, songs, story-telling materials and resources are also carefully identified for children to access independently. Our Early Years provision enables children to be introduced to mathematical skills and concepts in small groups as well as then have the time and freedom to further explore, practise and develop these skills. Through focused and routine observations, all staff within the Early Years then extend, challenge and strengthen each child's mathematical understanding.

Learning in the Early Years is often based upon pupils' interests and current themes. As children progress, greater emphasis is then placed on representing their mathematical knowledge through more formal experiences and they are encouraged to start recording their mathematical thinking.

In Key Stage 1 and 2, our principle aim is to develop children's knowledge, skills and understanding in mathematics through a daily lesson that has a high proportion of whole-class and group-direct teaching. Where possible, we use teaching assistants to provide support to individuals and/or to groups of children, this including the more able children who are challenged to deepen their thinking and make connections to other mathematical concepts and curriculum areas, as well as those children identified as having SEND and requiring additional guidance.

Teaching assistants across Key stage 1 and 2 are also trained to deliver the 'First Class @ Number' intervention programme as well as use 'Numicon' with children who require further support and preparation prior to accessing age expected objectives. Where this is required, sessions take place in addition to a child's daily maths lesson.

Since 2014, we have been working with the Great North Maths Hub to adopt a 'Mastery Approach' to the teaching and learning of maths at Swansfield Park Primary School.

The principles and features that characterise our mastery approach are:

- The large majority of pupil's progress through the curriculum content at the same pace. Differentiation is achieved by emphasising deep knowledge and through individual support and intervention. The questioning and scaffolding individual pupils receive in class as they work through problems will differ and pupils who grasp concepts rapidly are challenged through more demanding problems which deepen their knowledge further.
- A language rich environment is central to the teaching and learning process. We have a progressive, whole school mathematical language document that

teachers use to identify age-appropriate terminology. Mathematical vocabulary is routinely shared with the children and the other adults supporting within the classroom through 'Maths Word Wall' displays. Stem sentences containing precise mathematical vocabulary are also displayed and used by staff and children when reasoning and explaining, thus encourage full sentence responses.

- Practise and consolidation play a central role to mathematics learning at Swansfield Park. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts in tandem.
- Teachers use precise questioning in class to test conceptual and procedural knowledge, and assess pupils regularly to identify those requiring intervention so that all pupils keep up.
- Problem solving opportunities are built into each lesson with the aim of supporting children to make mathematical connections as well as become more fluent in the fundamentals of mathematics.
- Teachers use the CPA approach (concrete, pictorial, abstract) approach to ensure that concepts are modelled to pupils using multiple representations. This ensures that procedural and conceptual understanding are developed simultaneously.
- For the majority of lessons, pupils are seated in mixed ability groups as we believe that all pupils can attain highly in mathematics and every pupil will have different strengths and development areas. Therefore, groupings within classes are flexible and pupils will work in different groups dependent on their need.

At Swansfield Park Primary School, we also believe that the use of the outdoor environment is important in supporting the teaching and learning of maths. The world beyond the classroom in not only an essential part our children's personal development, but it facilitates authentic, experiential learning experiences where opportunities for deep, sustained learning can again be facilitated. Staff are encouraged to routinely plan for outdoor learning activities and these are detailed by each class teacher on their medium term planning documents

ICT is used in various ways to support the teaching and learning of maths as well as to motivate children's learning. Each classroom has a PC connected to an interactive whiteboard to facilitate hands-on, experiential learning. Teachers are also provided with a laptop to support their planning and provision and are encouraged to use ICT to enhance teaching and learning in mathematics.

Through our blended learning approach, all children in Key Stage 1 and Key Stage 2 have access to a virtual learning environment which they can access both at school and home in order to develop and deepen their maths skills.

The school also has a central Learning Hub with timetabled computer access. It is resourced to accommodate a class of children for their maths lessons. There is also access to Chrome Books and Ipad's in order to support the teaching and learning of maths within the classroom environment as well.

Assessment

Assessment is regarded as an integral part of the teaching and learning process at Swansfield Park Primary School. It is believed that formative and summative assessments are both important in fully understanding the depth of a child's mathematical knowledge and understanding, and that a balance of both quantitative and qualitative sources should be used when making such judgements.

At Swansfield Park Primary School, the key sources of assessment in maths are:

- Informal annotations on planning
- Observations
- Discussions with individual / groups of children
- Assessment for learning strategies: peer and self assessments
- Marking and feedback in children's books
- Weekly maths skills tests (Big Maths)
- White Rose End of Block assessments
- Termly progress checks using the two End of Term White Rose test papers: one for arithmetic and one for reasoning.
- Assessing for Mastery materials from the NCETM
- End of Year 2 and Year 6 SATs tests

At Swansfield Park Primary School, assessments are carried out at three levels:

Short term assessments:

In the Early Years, all members of staff are responsible for observing children as they interact in both child initiated and planned activities, making sure that each child is regularly assessed against the EYFS curriculum. Where appropriate, staff also use the development statements to identify possible areas in which to challenge and extend a child's current learning and development. Staff in the Early Years also make us of a green/ yellow/red smiley system in order to give a snap shot of a child's short term, mathematical achievement.

In Key Stage 1 and 2, short term assessments include the routine observations and discussions that take place within the daily maths lessons between staff and individual / groups of children, as well as the independent work of the children which can then be assessed against the 'I can' WILMA statements detailed in each child's maths book. These assessments are not recorded formally because they are for the teacher's immediate attention and action, however they are used to inform planning and to identify any misconceptions that need to be revisited and addressed.

Weekly skills tests also form part of each class teachers short term assessment evidence for children in Years 1 to 6. Each week, children work in their 'Big Maths' groups to complete an age-appropriate skills test covering many elements of the National Curriculum. Staff highlight and use children's misconceptions as teaching points each week, this ensuring that their errors are quickly addressed.

Medium term assessments:

In Key Stage 1 and 2, medium term assessments are carried out each term using the White Rose assessment materials. Class teachers then use a selection of qualitative and quantitative evidence gathered throughout the half term to detail each child's progress against the curriculum objectives in which they are working on. From this, an overall level is allocated to each child. Data is then entered by class teachers on to SIMS and mapping grids generated to track the progress of both individuals and groups of children.

Long term assessments:

Towards the end of the academic year, children in Year 2 and Year 6 sit standardised maths tests. Children's achievement is reported to the LA and their attainment is measured against school and national targets.

Children in Reception are assessed as part of the EYFS profile sheet in Number and Shape, space and measure. This assessment is made from the qualitative evidence and observations collected by the class teacher throughout the year. Children's achievement is reported as part of the EYFS to the LA.

Children in Year 1, Year 3, Year 4, Year 5 continue to use the White Rose test papers for their end of year assessments. As their most recent assessments, these test papers are passed on to a child's next class teacher as evidence of their achievement.

Termly moderation meetings are also used to ensure consistency and standards across classes and year groups.

Throughout the year, there are two Parents Consultations where parents are able to view their child's work and discuss their progress. At the end of each academic year, parents receive an annual, written report on which there is a summary of their child's effort and progress in maths. As a statutory requirement, the report also states whether a child has reached end of year age related expectations in maths as in the other core subjects.

Marking:

At Swansfield Park Primary School, we believe that children should be actively encouraged to participate in the marking process, either through self and peer assessment opportunities, or through responding to teacher's feedback.

Teachers are responsible for ensuring that marking is kept up-to-date and to ensure that children are given prompt feedback on the work they have done. Marking should make clear the achievements of each child, 'Green for Go', as well as what an individual child needs to do in order to improve 'Think ahead with Red'. Marking should also make clear a child's next steps. It is expected that detailed marking and feedback will be given to all children at least once per week in maths and that children will be encouraged to respond, demonstrating an open dialogue to help improve and move learning on.

In addition to formal, written marking, teachers also use other forms of feedback during lessons such as verbal feedback and questioning to ensure that a child's learning is moved on.

Resources

At Swansfield Park Primary School, teachers are expected to support the teaching and learning process by carefully selecting high quality, concrete and pictorial representation of mathematics, this not only supporting the schools CPA approach, but also helping to bring procedural and conceptual knowledge together. There is also the expectation that these resources and representations are progressive. Having had resources modelled by their class teachers, children should be encouraged to select and use the resources which they feel would be beneficial in supporting their learning.

Each classroom is equipped with a range of age appropriate resources. These are stored in accessible and clearly labelled drawers / containers. Larger equipment is stored centrally in the maths cupboard.

Resources are audited, checked and updated annually. Areas of need are monitored and equipment purchased by the subject leader in line with needs using the schools subject bidding process.

Each classroom has a 'Maths Working Wall'. This highlights the precise mathematical vocabulary that should be used by staff and children when giving mathematical reasons and explanations. There is also an agreed, age-appropriate learning environment checklist that staff are expected to follow when generating maths displays/areas in their classrooms.

In addition to the resources used with school, we also recognise that our families play an important role in supporting children to build firm mathematical foundations. We therefore provide each child with a 1 to 10 Numicon kit along with an information leaflet as they join Reception.

Continuing Professional Development

All staff are encouraged to develop, assess and improve their teaching of maths. Where a member of staff feels a need for particular INSET, discussions should take place with their line manager as part of their Performance Management.

At Swansfield Park Primary School, we encourage staff to attend school based INSET as well as external training courses advertised through both the online E-Courier and Great North Maths Hub. We also involve staff with policy and decision making as well as provide opportunities for in-school coaching where staff can both work with, and observe other colleagues.

Monitoring and Evaluation

It is the responsibility of the maths subject leader to produce an annual action plan in order to effectively plan, monitor and evaluate the development of the subject across the school. As a core subject area, the action plan is also monitored by a link governor.

Within the classroom, monitoring of the standards of children's work and the quality of teaching in maths is the responsibility of both the maths subject leader and the senior leadership team. It involves lesson observations, work scrutiny, learning walks, pupil interviews, data analysis and planning reviews. The designated maths governor also meets with the maths subject leader to challenge and assess the effectiveness of action plans and results.

Swansfield Park Primary School
Headteacher
Mrs J E Smith
BSc PGCE

This policy has been formally adopted by the governing body.

VERSION HISTORY

VERSION	DATE	DESCRIPTION
Initially adopted	19 June 2017	Adopted into Swansfield Park Primary School
This Review	27 May 2021	CM : minor amendments

APPROVAL AND AUTHORISATION

	NAME	JOB TITLE	SIGNATURE	DATE
Approved	**Jenny Smith**	Head Teacher	J E Smith	27 May 2021
Approved	**Angela Jefferies**	Chair of Governors	A Jefferies	27 May 2021
DATE OF NEXT REVIEW			**Autumn 2024**	