

Stanborough Primary School & Nursery

Maths Policy



Approved by:

Date:

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1. Curriculum Statement

Intent

We offer our children an engaging, balanced mathematics curriculum and good quality teaching to produce individuals who are numerate, creative, independent, inquisitive, enquiring and confident. We aim that all pupils:

- Become **fluent** in the fundamentals of mathematics so that they develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- Can **solve** problems by applying their mathematics to a variety of problems with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios.
- Can **reason** mathematically by following a line of enquiry and develop and present a justification, argument or proof using mathematical language.

Our pupils will

- be competent and confident in taking risks to apply mathematical knowledge, concepts and skills.
- be able to solve problems, reason mathematically and think logically and systematically.
- be able to work independently and in cooperation with others.
- be able to use and apply mathematics across the curriculum, and to understand the application of mathematics in real life contexts and scenarios.

Implementation

We believe that children can succeed in learning mathematics and our aim is for all children to enjoy mathematics and have a secure and deep mathematical understanding.

- The whole class is taught mathematics together, expectation here is that every child will master the key concept, whilst some will work more deeply on challenging tasks.
- The large majority of children progress through the curriculum content at the same pace. Differentiation is achieved by emphasising deep knowledge and through individual support and intervention.
- Further differentiation will be seen through targeted questioning and the feedback and scaffolding individual pupils receive in class, as they work through problems, will differ.
- Depth of understanding and readiness for the next stage (whether it is the next lesson, next unit of work, year or key stage) is prioritised, alongside high expectations of every child.
- Precise mathematical language, often couched in full sentences, is used by teachers so that mathematical ideas are conveyed with clarity and precision.
- Sufficient time is spent on key concepts to ensure learning is well developed and deeply embedded before moving on. In this way we aim for mastery every time.

To ensure whole school consistency and progression, the school uses the DfE approved White Rose Maths scheme as a planning tool. The offer of a 'small steps' progression and yearly framework supports our drive for excellence and mastery that underpins our school ethos. A 'small steps' progression approach avoids cognitive overload and encourages mastery. New concepts are shared within the context of prior learning, set at the beginning of the lesson giving the children an opportunity to make connections between prior learning and new concepts. At this initial stage children are engaged at the individual level as well as with partners. Throughout the lesson there are problem solving activities that prompts discussion and reasoning, as well as promoting an awareness of maths in relatable real-life contexts that link to other areas of learning.

Teachers use careful questions to draw out children's discussions and their reasoning. The class teacher then leads children through strategies for solving the problem, including those already discussed. Independent work provides the means for all children to develop their fluency further, before progressing to more complex related problems.

Mathematical topics are taught in blocks, to enable the achievement of 'mastery' over time. Each lesson phase provides the means to achieve at greater depth. In keeping with our policy of high expectations all children are encouraged to achieve highly with more children encouraged to achieve highly and offered rich and sophisticated problems, as well as exploratory, investigative tasks, within the lesson as appropriate.

Impact

The school has a supportive ethos and our approaches support the children in developing their collaborative and independent skills, as well as empathy and the need to recognise the achievement of others. Students can underperform in Mathematics because they think they can't do it or are not naturally good at it. The use of the White Rose scheme as a tool kit addresses these preconceptions by ensuring that all children experience challenge and success in Mathematics by developing a growth mindset. Regular and ongoing assessment informs teaching, as well as intervention, to support and enable the success of each child. These factors ensure that we are able to maintain high standards, with achievement at the end of KS2 well above the national average and a high proportion of children demonstrating greater depth, at the end of each phase.

Feedback and Marking

- Teachers and Teaching Assistants are expected to use appropriate feedback methods during the lesson. Feedback should be effective in ensuring pupil progress throughout a lesson or unit of work. It is recognised that live feedback in addressing errors and misconceptions is the most effective.
- All marking in maths books is in line with the whole school marking and feedback policy. Learning intentions are highlighted in either orange (working towards the objective) or green (achieved the objective). Orange highlighter can be used to direct children to errors, particularly for lower attainers, who may need more guidance.
- To support and guide children, teachers are encouraged to provide models. Adults should promote the idea of mistakes being good to learn from.
- Pupils are to self / peer mark where appropriate - if there is a misconception this can be addressed by the teacher straight away. Any written comments should encourage children to be 'maths detectives' (e.g. 'two of these are incorrect - find them and fix them').
- Teachers should use codes or use an orange highlighter to direct children to errors, particularly for lower attainers, who may need more guidance. Children are expected to correct errors in red pen/pencil (unless drawing in maths). If children make repeated errors or if there is a bigger misconception that needs addressing, this should be done through conferencing, verbal feedback or intervention.
- Praise for work done well including class dojo points, stamps, stickers and comments can be used at the teacher's discretion.
- Teachers use stampers to indicate 'next steps' or 'challenge' where appropriate and provide children with opportunities to consolidate/extend their learning.

2. Teaching and Learning

A typical lesson using White Rose lasts approximately forty-five minutes to one hour. Maths is taught daily during the morning with some variation on Physical Education days. Children begin with a short warm up activity that is a 'Flashback' or a reinforcement that connects previous learning with new concepts.

In KS1, problem solving is almost always presented with objects (concrete manipulatives) for children to use. Children may also use manipulatives in KS2. Teachers use careful questions to draw out children's discussions and their reasoning and the children learn from misconceptions through whole class reasoning.

Following this, the children are presented with varied similar problems which they might discuss with a partner or within a small group. At this point, scaffolding is carefully reduced to prepare children for independent practice. This is the 'Pause and Think' part of the lesson and the children might record some of their working out in their Maths books or on a mini whiteboard. The teacher uses this part of the lesson to address any initial errors and confirm the different methods and strategies that can be used. The children are then shown a 'challenge' which promotes a greater depth of thinking.

The class then progress to the 'Practice' part of the lesson, which is designed to be completed independently. This practice uses conceptual and procedural variation to build fluency and develop greater understanding of underlying mathematical concepts. A challenge question and links to other areas of Maths encourages children to take their understanding to a greater level of depth.

Children who complete this are provided with further 'rich and sophisticated' problems from the White Rose Maths Small Steps guidance or other similar resources, which they complete in their own maths book.

The final part of the sequence is a reflection task. This is an opportunity for children to review, reason, reflect on learning, and enables the teacher to gauge their depth of understanding.

3. Organisation

The school has implemented a blocked curriculum approach to the teaching of Mathematics. This ensures that children are able to focus for longer on each specific area of Maths and develop a more secure understanding over time. This approach is also designed to enable children to progress to a greater depth of understanding. Subsequent blocks continue to consolidate previous learning so that the children continually practise key skills and are able to recognise how different aspects of Maths are linked. For example, when children have completed a block which has enabled them to master the multiplication of two-digit numbers, a subsequent block on area and shape might provide opportunities to use this understanding when calculating the area of shapes with 2-digit length and width dimensions.

Early Years

Children in Nursery and Reception have a daily Maths teaching session, during which time they develop their understanding of simple mathematical concepts such as counting to 10, maintaining 1 to 1 correspondence, simple addition and subtraction facts, to recognise and describe simple 2d and 3d shapes. Children are taught these concepts using physical resources, pictorial resources, songs, games and role-play.

In both Nursery and Reception, the independent activities at the Maths table link to the focus for the week. For example, if the focus for the week is addition, then activities on the Maths table will often link to this. In addition to these planned independent activities, children also have the opportunity to self-select Maths resources to consolidate their learning during child-initiated activities.

We recognise the importance of play-based learning and therefore encourage children to develop their understanding during their play. Such opportunities are provided in both the inside and outside environment. Regular observations and assessments help to ensure that children, who require additional intervention to consolidate their mathematical understanding, are identified and supported through appropriate interventions.

In our teaching of early mathematics, it is our priority to ensure good progression. Particular attention is focused on the link between the concepts taught in Reception and the subsequent concepts in Year 1. To this end, practical equipment is used to support our children's grasp of numbers. We develop their understanding of linking concrete experience with visual and concrete experience with visual and symbolic representation as a precursor to the introduction of formal and written recording.

Key Stage 1 and Key Stage 2

As acknowledged by the National Centre for Excellence in the Teaching of Mathematics (NCETM) and the Maths Hub programme – 'The use of well-designed and tested textbooks is critical for the successful implementation of teaching for mastery. A good textbook is both an aid for the teacher in planning lessons and for the children during lessons and working on their own.'

Through Years 1 to 6 we combine the use of White Rose worksheets which reflect a coherent programme of high-quality materials and exercises which are structured to build deep conceptual knowledge alongside developing procedural fluency. The use of the worksheets is combined with the use of other resources to deepen, stretch and further challenge their conceptual understanding.

Lessons in both key stages follow the same sequence (see section 2: Teaching and Learning). In KS1, the teacher might use 'mini-plenaries' to explain each question during the children's completion of the worksheets.

4. Assessment

Foundation Stage

- Reception Class practitioner's ongoing observational assessments made early in Autumn Term 1 ascertain a baseline which then informs subsequent teaching and learning for each child.
- Future attainment is noted using photographs and observational notes. Progress is recorded in each child's Learning Journey and the next steps to be taken are identified. Progress is monitored termly.

Assessment for Learning

Children in Years 1-6 receive effective feedback through teacher assessment, both orally and through written feedback, and assessment for learning that is integral to the design of each lesson.

The structure of the teaching sequence, in White Rose ensures that children know how to be successful in their independent work. This is particularly guided by the use of success criteria. The guided practice provides opportunities to think together in collaboration with others during the lesson. This structure provides further preparation for children to be able to apply the skills, knowledge and strategies taught during the lesson. Common misconceptions are addressed within the teaching sequence and key understanding within each 'small step' is reviewed and checked by the teacher and the children before progression to further depth.

At the end of the lesson, the children review their work and self and peer assessment are used regularly as outlined by the school's 'Presentation, Marking and Feedback Policy'.

Opportunities for additional practice and correction are provided by the teacher, as appropriate, during marking, with a focus on promoting and achieving a growth mindset within the subject.

Formative Assessment

Short term assessment is a feature of each lesson. Observations and careful questioning enable teachers to adjust lessons and brief other adults in the class if necessary. The lesson structure of White Rose is designed to support this process and each 'pause and think' structured throughout the lesson sequence also allows for misconceptions to be addressed.

At the end of each blocked unit of work, the children also complete the carefully aligned White Rose Maths 'End of Unit Assessment'. The outcome of this is used by the teacher to ensure that any identified gaps in understanding can be addressed before the next unit is taught. Each child's scores provide an overview of achievement in each specific area within the programme of study. This also informs dialogue with parents and carers during open evenings, as well as the judgements made at the end of the term as to the extent that each child has demonstrated mastery of each 'fundamental' objective.

Summative Assessment

Through GLS (GLS) Teachers administer a termly arithmetic paper and reasoning and problem-solving paper which specifically links to the coverage for that term. The results of these papers are used to identify children's ongoing target areas, which are communicated to the children, as well as to parents and carers at Parents Evening. They are also used alongside the end of unit assessments and outcomes of work, to inform the whole school tracking of attainment and progress for each child in line with each 'fundamental' objective.

Teachers also use Classroom Monitor to make judgements on children's progress at the end of a topic. Assessment data in maths is reviewed throughout the year to inform interventions and to also ensure that provision remains well-informed to enable optimum progress and achievement. End of year data is used to measure the extent to which attainment gaps for individuals and identified groups of learners are being closed. This data is used to inform whole school and subject development priorities for the next school year.

5. Planning and Resources

Planning

At Stanborough Primary there is a consistent approach to planning, which is undertaken at two levels:

Long term planning is detailed in the programmes of study in the National Curriculum (2014) for Mathematics. These are set out for KS 1 and KS 2, as end of year the key objectives to be taught in each year group.

Short term planning where lessons are planned by class teachers who are specifically asked to consider: learning intentions; basic skills; key questions; representations / resources; stem sentences; vocabulary; misconceptions and role of adult support. They are advised to refer to White Rose resources for examples of variation and how to scaffold for those learners who may struggle to grasp concepts.

In Nursery and Reception, Mathematics is planned similarly, under the guidance for the Early Years Foundation Stage Curriculum using the Early Years Outcomes. The children are given rich opportunities to develop their understanding of number, calculating, measurement, pattern and shape and space through structured and child-initiated play-based activities both indoors and out. This enables the children to enjoy, explore, learn, practise and talk about their developing understanding of mathematics.

Resources

When introduced to a new key concept, pupils should have the opportunity to build competency in this topic by taking the following approach:

Concrete – children should have the opportunity to use concrete objects and manipulatives to help them understand what they are doing.

Pictorial – pupils should then build on this concrete approach by using pictorial representations. These representations can then be used to reason and solve problems.

Learning Wall – consist of the knowledge organiser for the unit replete with required vocabulary and examples of concepts for that unit.

Abstract – with the foundations firmly laid, learners should be able to move to an abstract approach using numbers and key concepts with confidence.

Each classroom will have a designated maths area which is labelled with resources accessible for children to independently select them to support their learning. A bank of essential mathematics resources including Numicon, Dienes, Place Value Grids, Times Table Squares, Number lines, Hundred Squares, and Counters is kept in each classroom. Additional topic specific resources (Geometry, Measures etc.) are stored centrally.

An interactive teaching tool for the purpose of modelling strategies is available to all teachers as part of the White Rose Maths scheme. Resources to support teachers' own professional development and understanding of new approaches as part of a mastery approach are available on the White Rose Hub. As well as overviews of learning, these include short videos which demonstrate new methods to ensure accuracy.

The Enjoyment of Maths through Times Tables Rockstars and other programmes

At Stanborough we are always looking for ways to enrich children's learning both at school and at home. To support children in learning and practising times tables, we have introduced Times Table Rockstars; a fun and challenging programme designed to help pupils master the times tables! Each child in Years 1 – 6 has their own username and password.

Times tables are essential to access many mathematical concepts. It is recommended that children do several short bursts of times tables practice per week to build up their speed, fluency and accuracy. We regularly participate in local or nation-wide competitions

All children from Year 1 to 6 are engaged annually in a competition that is supportive of sharpening their knowledge of the timetables and enhancing their speed and fluency.

Incorporating Century to complement our offer at school is a game changer resource that supports a specifically tailored challenge to each individual child, stretching the capability of all children both at school and at home. Teachers use this platform to support their students' mathematics learning at school and at home. This Artificial Intelligence platform demonstrates the power of AI to promote our commitment to ensuring that all pupils are served regardless of their starting point.

Similarly, teachers incorporate a weekly session of fun learning of Mathematical concepts through games this is a key feature of learning Maths at Stanborough as it fosters the idea that Maths is enjoyable and is an essential part of everyday life. Above all, this approach encourages a positive self-concept of themselves as a Mathematician and encourages a growth mindset.

7. Equal Opportunities

The school is committed to ensuring the active participation and progress of all children in their learning. All children will be given equal opportunities to achieve their best possible standard, whatever their current attainment and irrespective of gender, ethnic, social or cultural, background, home language or any other aspect that could affect their participation or the progress of which they are capable.

8. Role of the Subject Leader

The subject leader will raise the profile of Maths at Stanborough Primary School through best practice.

- They will model lessons, as appropriate to new staff, ECTs and peers to support continued professional development.
- They will ensure the high quality of Maths displays around the school, present certificates of achievement during assemblies and involve the school in 'celebrations' of Maths, including participation in events such as 'World Maths Day'.
- The subject leader will support staff in providing opportunities for learning outside the classroom in Maths and will identify and organise opportunities which enable this, as appropriate.
- The subject leader will monitor progression and continuity of Maths throughout the school through lesson observations and regular monitoring of outcomes of work in Maths exercise books.
- The subject leader will ensure that all staff have access to year group plans and the relevant resources which accompany them.
- The subject leader will monitor children's progress through the analysis of whole school data. They will use this data to inform the subject development plan which will detail how standards in the subject are to be maintained and developed further.
- The subject leader will, organise, audit and purchase central and class-based Maths resources, where needed.
- The subject leader will keep up to date on current developments in Maths education and disseminate information to colleagues.
- The subject leader will ensure that all staff have access to professional development including observations of outstanding practice in the subject.

9. Role of the School Community

The school recognises that parents and carers have a valuable role to play in supporting their child's mathematical learning. An overview of the Maths curriculum is available on the school's website, as well as guidance in the progression in calculation methods used by the school. Paper copies of these documents are also available on request and the curriculum letter, sent home by each year group, also outlines the Maths topics to be covered.

- Children are given Maths homework at least once a week from Reception to Year 6. Activities are to be set via Class Dojo.

- Parents are informed of their child's progress at Parents Consultation Evenings, and this is also communicated in written school reports.
- Parents and carers are encouraged to speak to their child's teacher at any point during the year, either informally or by making a specific appointment. Information about their child's standards, achievements and future targets in Maths is shared during parent/carers meetings, as well as ways that parents/carers may be able to assist with their child's learning.
- The school also provides a number of opportunities for parents/carers to learn about what their child is learning and the way their child is being taught through parent workshops where possible.

10. Inclusion

Taking a mastery approach, differentiation occurs in the support and intervention provided to different children, not in the topics taught, particularly at earlier stages. The National Curriculum states: 'Children who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.' There is little differentiation in the content taught but the questioning and scaffolding individual children receive in class as they work through problems will differ, with higher attainers challenged through more demanding problems, which deepen their knowledge of the same content before acceleration onto new content.

Children's difficulties and misconceptions are identified through immediate formative assessment and addressed with rapid intervention – commonly through individual or small group support later the same day. A range of inclusion strategies, as listed on the school's inclusion planning key, are embedded in practice and teachers are aware of the special educational needs of the children in their Math's class, as well as those who have English as an additional language.

Although the expectation is that the majority of children will move through the programmes of study at broadly the same pace, the 2014 National Curriculum states: 'Decisions about when to progress should always be based on the security of children's understanding and their readiness to progress to the next stage.' If a child's needs are best met by following an alternative plan, including coverage of the content from a previous year, this will be overseen by the SENDCo, in collaboration with the class teacher. Specific arrangements for the provision of children with SEND will be communicated to parents and carers during the SEND review part of our Parent Consultation Meetings.

11. Monitoring and Review

The Math Lead alongside SLT are responsible for monitoring and evaluating mathematics curriculum. Mathematics is rigorously monitored through a triangulation of observing the teaching and learning of lessons, book looks, planning trawls and pupil surveys which continually reflect back to the school set targets.

- Weekly planning is required to be readily available electronically on the staff server. This will allow easy access for planning to be regularly monitored by the Maths Lead.
- Pupil Progress Meetings are regularly held with Senior Management Team to review learning that has taken place and progress in books.
- Analysis of assessment data in order to plan whole school improvement in Mathematics.
- Math Leads will provide an action plan to keep the Head Teacher and senior leadership team informed, in which the strengths and weaknesses in mathematics are evaluated and areas for further improvement are identified.