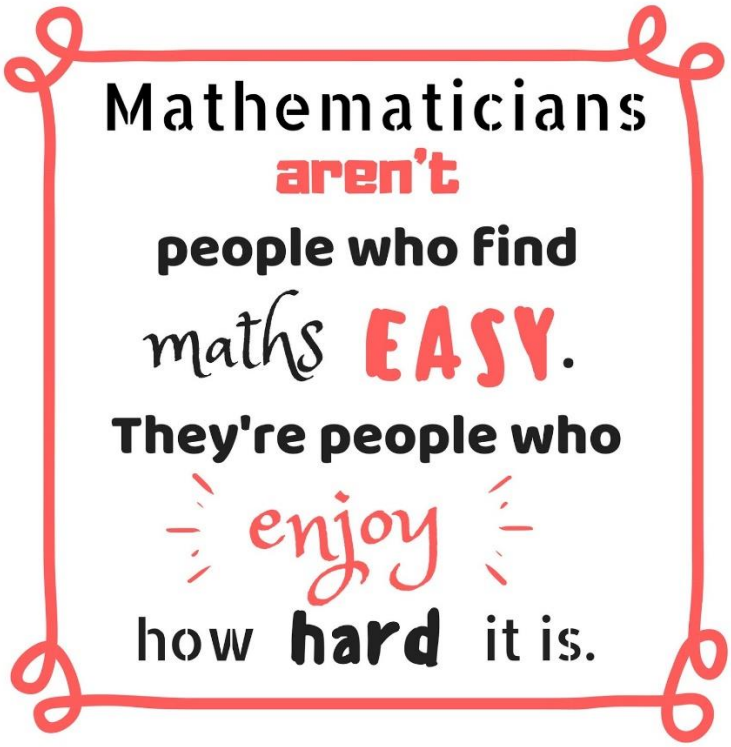
Rawdon St. Peter's
CHURCH OF ENGLAND PRIMARY SCHOOL
Unlocking every child's potential.

Whole School Maths Strategy



Rationale

Maths is everywhere. We use it in our daily lives far more often than we realise. From time, money, shape and measure, the older we get the more complex issues around this basic knowledge becomes. At Rawdon St. Peter's we are responsible for putting mathematical foundations in place, building concepts and confidence. We understand how important maths is for our children to be successful in later life.

The attitude to learning encouraged by staff which is nurtured through our maths teaching and learning at Rawdon St. Peter's, allows pupils to have a positive attitude towards maths, a drive to succeed and they never give up.

Our approach to the teaching and learning of maths is aligned with the Rawdon St. Peter's curriculum rationale to promote 'Life in all its fulness'.

Planning for Learning

At Rawdon St. Peter's, we deliver the National Curriculum following planning from White Rose Maths. Their long-term plan is supportive of our mixed aged year groups and begins each academic year with a focus on place value ensuring that pupils have a firm understanding of this topic preparing them for what comes next. As the planning overviews provided by White Rose are so detailed, teachers are not required to complete weekly planning and can sequence their learning through their lesson slides.

Learning in lessons is structured through the use of IWB slides whilst embedding Rosenshine's Principles of Instruction. The use of slides allows for teachers to plan for progress and ensure learning is sequenced to secure understanding of the concept being taught. Although the slides provide a base for the structure of the learning that should take place, teachers adapt these slides to meet the needs of the pupils they are teaching.

Challenge is a key feature of all lessons at Rawdon St. Peter's and is always planned for. This is done through carefully designed learning tasks along with challenge through questioning, exploring and opportunities to reason and explain concepts. Planned opportunities for open ended challenges and collaboration make invaluable learning opportunities for pupils to consolidate, extend their learning and support the mindset of a 'can do' approach.

To ensure children acquire a deep, long-term, secure and adaptable understanding of maths, we adopt the 'Teaching for Mastery' approach. This is characterised through teacher-led, whole class teaching, common lesson content for all pupils and the use of manipulatives and representations. This is planning for within each stage of learning.

Live Learning

Maths lessons are exciting, lively and practical. Like all lessons at Rawdon St. Peter's, Rosenshine's Principles of Instruction are embedded in maths lessons. Opportunities for speaking and listening, investigative curiosity, use of mathematical language and the effective use of resources are all key features of our lessons. Learning involves both fluency, reasoning and problem solving at all stages. This adds appropriate breadth and depth to pupil understanding.

Teachers make good use of White Rose resources which they can access through the website. As learning is so collaborative and practical, the use of worksheets is minimal. When working in books, work is dated (short date) and matched with a title which supports the area of maths being taught. There is no requirement for children to copy the learning intention into their books as this is not the best use of learning time.

To support understanding, children in each classroom have access to resources to help them explore and explain their understanding. The use of resources supports the Concrete, Pictorial, Abstract (CPA) approach and is dependant on the age and stage of learning. Resources are used to support pupils' understanding and to show how maths can be represented in different ways, allowing pupils to make links and connections between aspects of learning. All mathematics resources should be clearly labelled and organised in all classes and be supportive of a self- serve approach supporting independence.

Working walls are a key part of learning in each classroom. They are used as an age and stage appropriate scaffold for current learning and reference point to support pupils with key information. They are structured and organised to support the current maths learning. Relevant mathematical language is displayed on the working wall alongside

appropriate mathematical representations to help pupils understand and apply their use of language whilst committing learning to the long-term memory.

To support the use of mathematical language, sentence stems are used at all stages. These encourage pupils to speak in full sentences, articulate their understanding clearly, including how they know. This allows pupils to recognise that there are different ways to solve mathematical problems/questions and supports them in exploring mathematical ideas. By pupils exploring the process of mathematical working and verbalising it, it allows them to identify where they went wrong in the process and build resilience to problem solve and work out the correct answer. The sentence stems are progressive across school, appropriate to age and year group.

Teachers insist on high level of success before pupils move on to new content. This is particularly seen as we achieve mastery as pupils have complete independence in a concept, skill or in their knowledge, including being fluent and consistent in their application.

Maths in the Early Years

In EYFS, opportunities for maths and to develop mathematical understanding can be seen across the provision. As well as having a dedicated maths area, pupils are presented with several opportunities to explore maths.

It is important that pupils get the opportunity to explore the resources in a maths areas of provision throughout the year. Pupils will use the resources in more formal maths lessons as well as accessing maths through provision. Resources are both formal and informal allowing children to understand that maths is all around us and to explore their thinking.

Learning environments are language rich with key mathematical language being displayed on the maths working wall. The areas of provision provide mathematical challenge, using key concrete resources to stimulate mathematical thinking and challenge. The provision provides opportunities for pupils to record their workings and this can be recorded in their individual profiles to show progression. Photographs are also used to capture pupil understanding and progression. Teachers and other adults scaffold mathematical thinking whilst the pupils access the provision, ensuring key mathematical language and stem sentences are modelled. Teachers and adults also work with small groups of pupils to address any identified gaps in learning as well as effectively challenging more able pupils.

Daily whole class input is delivered and focus maths groups take place each week. During this time, children begin to learn the foundations of mathematical concepts and have the chance to record their learning in their individual maths books. Teaching and learning here is organised into small ability groups and learning here is then spread through provision allowing children to rehearse the skills they have learnt in group sessions. This is the start of independently exploring maths and also being able to practise articulating their learning and understanding.

The outdoor provision is an extension of the indoor maths provision in that maths activities are always available for the pupils to access. The resources outside give opportunity to learn on a larger scale and has more opportunities through its resources to explore shape, space and measure. Staff recognise opportunities for mathematical learning and use scaffolded questioning to support learning opportunities and to encourage challenge when pupils are engaged in their learning.

From EYFS, pupils are regularly exposed to counting in steps of 1, 2, 10 and 5 both verbally and exploring patterns. This continues into year 1 so that this knowledge is consolidated. This enables pupils to make links between 'skip counting' and times tables once they reach year 2 and start to learn the 2, 5 and 10 times tables more formally. Once pupils can count confidently in these steps, they will be given opportunities to apply their knowledge to add breadth to their understanding.

The baseline is carried out at the beginning of the academic year and from this point, assessment in EYFS is ongoing and feeds into daily planning. Progress made is evidenced through their learning journals as well as more formal maths work which is recorded in their maths books.

Maths in Key Stage One

As children join year one, learning becomes more formal. A real focus on the learning and recall of key mathematical facts begins in year one as is appropriate to the age and stage of learning in line with the KIRF document. These key facts are taught at the beginning of maths lessons and at other times of the day where possible to reinforce knowledge.

Children are taught in daily whole class maths lessons. Pupils break off into groups as appropriate to access key areas of learning linked to the small step being taught. The adults in the class then facilitate learning to support and challenge each pupil according to their need.

The concrete and pictorial resources are appropriate to the small step being taught, and demonstrate consolidation and progression from EYFS.

Learning environments continue to be language rich with key mathematical language being displayed on the maths working walls as well as being made explicit to the pupils during teaching through the teaching slides. Stem sentences are modelled by the teacher and the pupils are expected to use stem sentences to articulate themselves appropriately.

Within teaching slides, the use of concrete and pictorial representations are made explicit within the area of learning being taught to enhance conceptual understanding.

As pupils progress through KS1, they get more opportunity to select their own resources based on having sufficient understanding of it, and through this process they can also see what resources are unsuitable/not efficient for the task. Teacher discussion and modelling helps the pupils to understand the most efficient methods and reasons that some methods are not efficient and the reasons why.

By the end of year 2, it is key that pupils are secure with their knowledge of the 2, 5 and 10 times tables and related division facts. It is key that pupils recognise the relationship between multiplication and division and demonstrate their knowledge through maths lessons using CPA representations to support their understanding of this key concept. Regular activities are imperative for the development of pupil knowledge and understanding and activities such as counting by rote, written starters and other regular focus tasks which will support pupils with this.

Pupils are introduced to Times Table Rock Stars (TTRS) in KS1. TTRS follows an algorithm to support pupils at the level in which they are working. There are 5 different activities within it that provides challenge for individuals which keeps pupil motivation high. Motivation is also enhanced through the whole school TTRS display in the hall and the weekly progress update in celebration assembly, recognising and celebrating the ongoing successes of pupils each week.

By the end of year 2 when pupils are secure with the 2, 5 and 10 times tables, they will have a firm understanding of the pedagogy behind times tables – what they are and mean. This will give a basis for them to build upon when they enter year 3. TTRS is continued to be used regularly to practise times table and build knowledge of new times tables. Intervention will be provided to support pupils with development of times tables.

Maths in Key Stage 2

As pupils move to LKS2, they have a firm understanding of the resources they have been exposed to in KS1 so can start to use their own discretion to explore the apparatus dependent on the teaching and learning taking place. Concrete and pictorial representations are continued to be used within teaching. When completing maths tasks, resources are organised in such a way that pupils can independently access them according to need. In Year 3, the pupils should continue to practise the 2, 5 and 10 times tables and by the end of year 3, they should also be secure with the 3, 4 and 8 times tables.

In year 4, pupils need to regularly consolidate the times tables learnt previously as well as learn the 6, 7, 9, 11 and 12 times tables in preparation for the Multiplication Check where pupils will be tested on 25 random times table questions. Regular practice of TTRS is essential to build pupil speed and fluency on a program similar to that of the times table test.

In UKS2, it is crucial that pupils continue to practise their times table knowledge and apply this knowledge to their maths lessons. Pupils should continue to use TTRS.

As pupils reach UKS2, concrete and pictorial resources are used as part of the teaching process to help the pupils understand some mathematical concepts but pupils should not be regularly reliant on the use of concrete resources in their own work (unless they are not working at the expected level). Pupils have access to concrete resources (which they should access independently) when they first start learning new concepts but once they have conceptual understanding, they should move away from these concrete resources and use written methods modelled by the teacher.

Feedback and Assessment

Feedback in maths lessons can be done in several ways as outlined in the Rawdon St. Peter's Marking and Feedback Policy.

Formal maths assessments are carried out termly alongside White Rose end of unit assessments. Following assessments, teachers complete gap analysis to identify misconceptions which can be acted on through whole class teaching or small group/121 intervention as appropriate.

The triangulation of performance during lessons, work in books and outcomes in formal assessments drive Pupil Progress Conversations, which take place 3 times a year. Information taken from data outcomes, pupil progress and maths monitoring support the work of the maths subject leader and ongoing school improvement.

The Rawdon St. Peter's Assessment Strategy explains in detail how we assess learning in maths.

Resources for supporting the teaching of Times Tables:

- Regular rote counting
- Use of CPA in lessons to build understanding
- Times Table Rockstars (TTRS)
- Printed resources from TTRS to be used in lesson starters
- Other printed resources to be used in lesson starters/morning work
- Hit the button (interactive game)
- Regular testing and revisiting (verbal and written)

In writing this strategy, a number of key documents were considered and wider reading carried out, details of which can be shown below:

School Policies	Professional Reading	Key Resources for Teachers
▪ Rawdon St. Peter's Assessment Strategy ▪ Rawdon St. Peter's Calculations Policy ▪ Rawdon St. Peter's Long-Term Planning and Progression Documents ▪ Rawdon St. Peter's Key Instant Recall Facts Progression Document ▪ Rawdon St. Peter's Marking and Feedback Policy ▪ Rawdon St. Peter's Teaching & Learning Toolkit	▪ Rosenshines Principles of Instruction ▪ NCETM Mastery Explained	▪ White Rose Maths ▪ TT Rock Stars ▪ Concrete resources available in all classes