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St George's CE Primary School, Chorley

Mathematics

Adopted by the Governing Body on: Insert Date

Signed (Chair of Governors):



Date of Next Review 30th June 2023
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Reviewed 30th June 2022

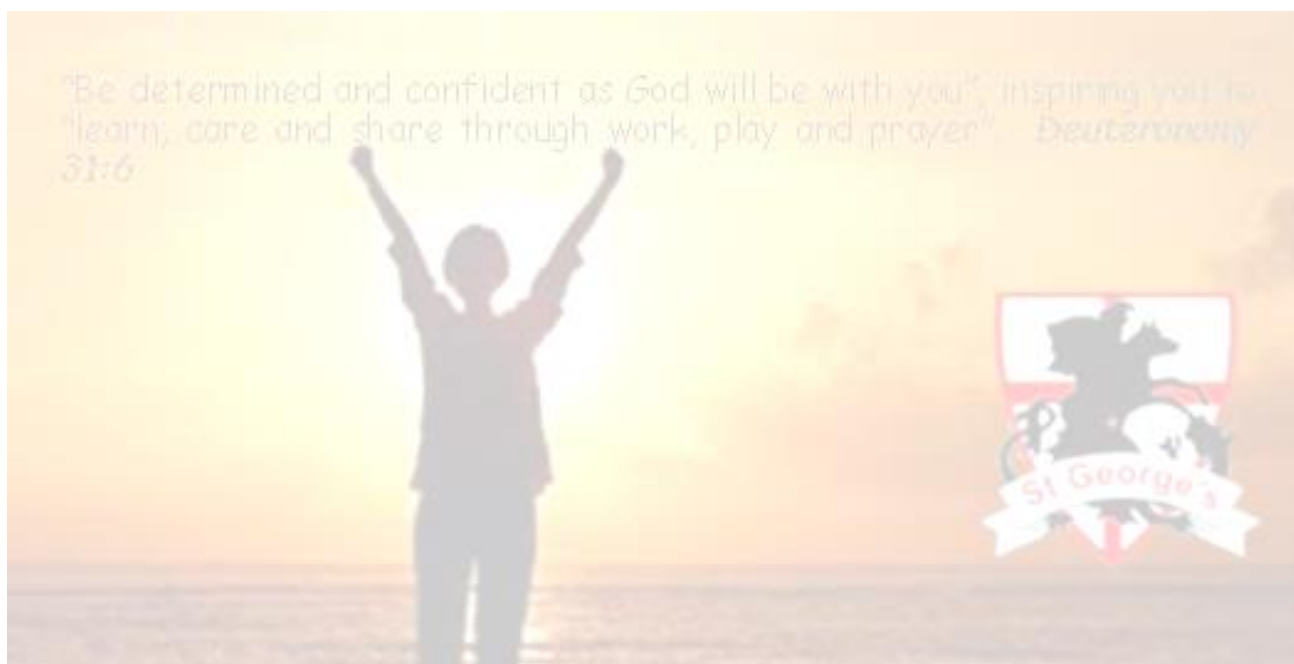
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Intent

What is the school's mission statement?

At St Georges C of E Primary School our aim throughout our work in Mathematics is to uphold the school's mission statement: Be determined and confident, as God will be with you, inspiring us to learn, care and share through work, play and prayer.

What is the school's vision for the subject?

We encourage children to be determined and resilient as they face each challenge set to them. Maths is designed to develop their confidence through small, incremental steps to ensure a mastery of each new concept.

How was the curriculum for the subject designed? (including statutory requirements)

As a teaching school, St George's took part in a research project to look at Shanghai/Singapore Maths. This project looked into how teaching in these countries maintained high scores in mathematic testing as well as the number of children continuing mathematics into higher education. The outcome of this project was to look at how methods from these highly achieving countries could be adapted to the English National Curriculum.

After extensive research, including a visit to Shanghai schools, visits to schools in England who were implementing mastery methods, meetings and conferences with the NCETM and LEA meetings within Lancashire; we designed our own curriculum based on the methods we had seen and knew would be beneficial. In essence we wanted to produce a curriculum that was based on mastery of mathematical concepts, making sure we were gaining greater depth into the children's understanding as well as producing confident, resilient and enthusiastic.

We were keen to implement the sequence of teaching new concepts through concrete – pictorial– abstract, and this became the basis of our planning. We also were keen to ensure our teaching and learning was based on the 5 main components of mastery: -Variation, fluency, mathematical thinking, representation and structure, coherence. As such, we then looked at various ways we could implement these and decided that the best route would be to use a scheme of work. We wanted a scheme that would give teachers support in the 5 key components of mastery and would allow them to the time to think deeply about 'how' they could teach this, the questions they would ask the children and how best to support and deepen learning whilst still being able to integrate their own style and creativity. In terms of deepening children's knowledge, we wanted to ensure that we used a spiral curriculum so that children would consistently go back to earlier learning, remember this and then move on and deepen their knowledge.



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We chose the Maths No Problem scheme and a small group of staff attended training with Yeap Ban Har, the founder of this scheme. From there we attended various forms of training on the use of the text and workbooks as well as how to teach for mastery from these resources.

After consultation with Governors and parents, we were able to implement this scheme from Year 1-5 with Year 6 using the White Rose Maths mastery scheme. Throughout the process we have offered training to parents and have given opportunities on a yearly evaluation on how both children and parents feel about the subject- this can be done through pupil interviewing as well as formal questionnaires.

As stated above, the Maths No Problem scheme covers Y1-5. In our EYFS we ensure that staff are trained in the same way as other staff members to ensure that they have a clear understanding of mastery concepts. As such in EYFS we foster a mastery environment where children explore new concepts using practical equipment to find their answers. We will then scaffold this understanding into visual representations and in some instances into an abstract understanding, although this is not always our goal in EYFS as we want children to explore more practically and visually. To support their mastery environment, our EYFS team use the White Rose Maths scheme to support their teaching. The White Rose scheme aligns with the statutory EYFS framework 2021.

‘How is our curriculum aspirational for all pupils including those with SEND and more able?’

Our curriculum is accessible to all through the use of the core mastery concepts listed above.

Throughout year groups we use the path of practical-pictorial-abstract to tackle concepts. As such this enables children to access the lesson in a way that fits them. At no point do we insist that the practical equipment needs to be taken away and this is beneficial to children who are struggling learners and those with SEND as we can tailor learning to them.

In addition to this, one of the core concepts of mastery is ‘variation’ - in particular ‘procedural variation.’ This means that questions are written to slowly build knowledge, building to greater depth questioning throughout. As such, for struggling/SEND learner we can ask them to complete the first few questions and then move onto additional work based on these questions to ensure that they has mastered this element.

We aspire that all of our learners will achieve in each lesson and we use daily intervention to ensure any gaps or misconceptions are plugged on the day meaning that every child can access the whole lesson.

In some cases, children will not be able to access the curriculum at the same level of the peers. The children will have an individualised action plan to ensure that the curriculum is adapted to their needed. This action plan will be evaluated and updated termly.

For children who are more able, we want them to be able to deepen their knowledge and understanding of the day’s learning. One way of ensuring the more able are demonstration their greater understanding is through explanation. This can be through explanation to their peers in different parts of the lesson and can also be part of their challenge work at the end of the lesson. An ability to clearly articulate their own understanding of what they have learnt shows a mastery.



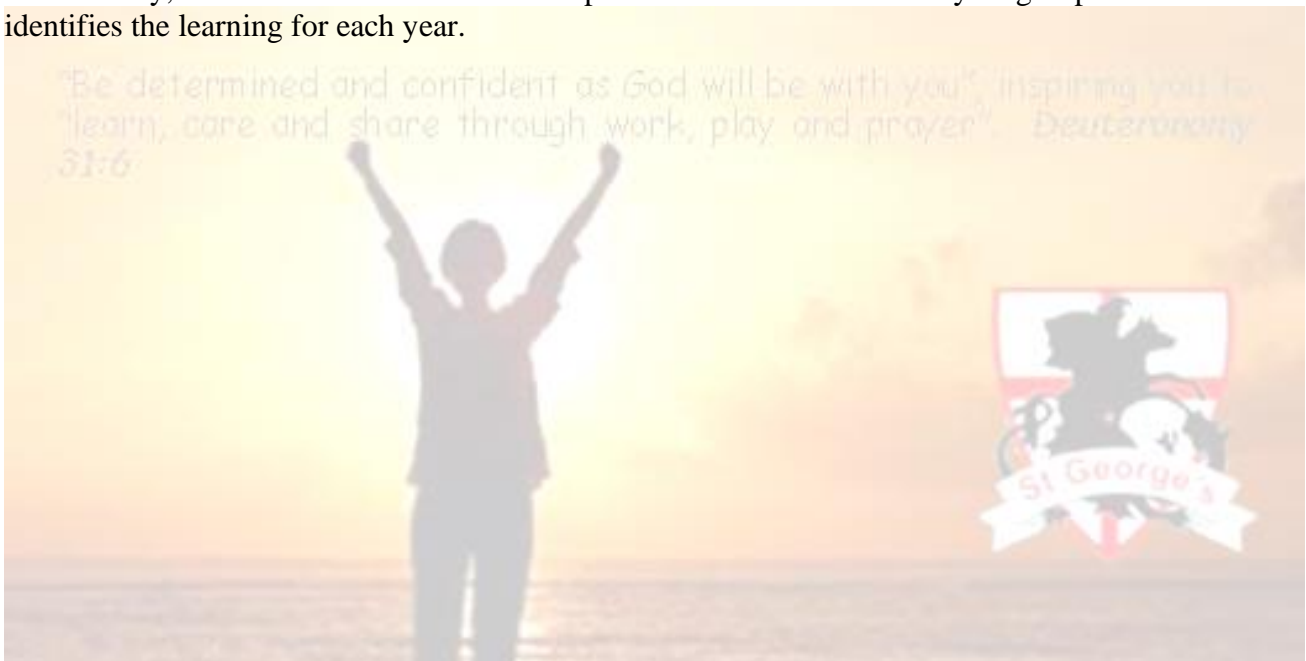
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Additionally, each classroom has a challenge area where children can find tailored questions that relate to their current topic. These questions present the same learning in different contexts so that children have to be able to manipulate their learning to answer these questions.

Where can the long term, and/ or medium term plan be found?

Each class has a long term plan which will identify which topics will be taught in each half term with the KLIPs covered. These can be views on the school Dropbox in Subject Leader Files – Curriculum Maps.

Additionally, the Maths No Problem scheme provides overviews for each year group which identifies the learning for each year.





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Implement

How is the subject implemented in the Early Years Foundation Stage?

In EYFS we endeavour to stick to the schools mastery approach. We do this through ensuring that children are given the chance to explore concepts through the use of practical equipment and questioning the children's knowledge of what they are learning and why they are doing it. Additionally we use the White Rose Maths EYFS mastery scheme which offers the children opportunities to problem solve and master each concept.

We teach in small groups, starting the year in mixed ability groups and slowly tailoring the grouping to the needs of the children. Inputs are short 10 minute sessions with a range of teaching styles including the use of songs, practical equipment and whiteboard notations. Children are encouraged to practise the skills from this group work through continuous provision and teacher led activities.

Expectations are taken from Development Matters and tasks are set accordingly depending on the age band of the children. Staff work with small groups to assess their learning and identify next steps.

What professional development is offered to staff in relation to the subject?

Staff attend Year group meetings led by a Lancashire Mathematics Consultant twice a year. These meetings are cross alliance and therefore are able to talk to other professionals in the same year group.

Additionally we use the Lancashire Consultant as well as our Maths Subject Leader to support teachers in school- this can be through lesson observations, team teaching and planning support. Additional courses on Maths No Problem, Mastery and new curriculum initiatives as also accessed when appropriate.

The subject leader attends subject leader meetings once a term which keeps us up to date on new initiatives.

What resources are used to support the planning of the subject? (schemes of work etc)

We use the Maths No Problem Scheme to plan all units. Teachers plan using the online support offered by Maths No Problem and annotate lessons in a text book as opposed to written planning. (See Appendix A)

Additional resources used are the NCETM mastery documents and White Rose Hub resources.



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How is learning sequenced to build on prior learning and prepare children for the next stage in their education?

Maths No Problem is designed to be a spiral curriculum. Each year group covers each area of maths once, this is then repeated in the next year. The scheme is designed that the first few lessons of each year go back to the previous year's learning and then build up from this.

What resources are available to support the implementation of the subject?

We are very fortunate to have a wide range of resources available to us. Each classroom has table sets of maths resources which fit for their year group, these contain items such as place value counters, 10 frames, dice etc and are adapted and added to for each new unit so that children have the resources that are helpful to them at their fingertips. This is very important for the mastery concepts of 'practical- pictorial- abstract.' To support more able learners we have invested in challenge cards such as convince me cards to set their learning in different contexts.

In addition we have a range of online resources including Maths No Problem, White Rose, Times Table Rockstars and NumBots.

How are parents involved in the subject?

Each year we send home a questionnaire to parents to ask questions about how they feel the subject is progressing and how they would describe their child's progress and confidence in maths. We use these questionnaires to add to the action plan for the coming year.



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Impact

How is progression helping children to acquire new skills and know and remember their learning?

Maths is an interconnecting subject that relies on concepts from different parts of the curriculum to come together for children to solve a range of problems. It is important to us that children feel confident to remember and access previous learning to keep building their confidence and resilience in solving problems.

As discussed, the spiral curriculum that is used in Maths ensures that children keep revisiting their learning so that they remember and then build on this.

The use of in focus tasks and challenge questions within the mathematics curriculum allows children to use a range of skills and link to prior learning throughout lessons.

What are pupil attitudes to this subject, how are they gathered and how does pupil voice influence subject development and improvement?

From when we began using Maths No Problem, the children have been very complimentary and enthusiastic towards their maths work.

Each year we choose a group of children to take part in a pupil attitude questionnaire about Maths. This takes on the form of a chat with the Subject Leader who will ask a range of questions around enjoyment, understanding and challenge of the subject. These answers will then feed into the action plan for the upcoming year.

How do children record their learning?

Children have a Maths No Problem Workbook with worksheets that fit with each day's learning. These are filled in as appropriate when the children are at the correct point in their learning. They are not expected to be filled in daily, this is left to teacher judgement on their own class.

Additionally children use journals to record any other learning. This can be additional work set by their teacher to practise a new concept or challenge questions that show a greater depth of understanding.



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How is feedback given to children?

Workbooks are to be marked on the day the lesson takes place. Good practise is to ensure that teachers and TA's keep an eye on children's progress throughout the lesson and, when time allows, mark as children work. This will ensure that immediate intervention is given to children with misconception in their understanding. It will also give the opportunity to move on and challenge the depth of thinking of children who have grasped the concept rapidly. Children are also given the opportunity to mark their own work at times. This ensures that children are aware of their own achievements and helps them to notice mistakes and misconceptions.

Marking workbooks does not need to have a next step identified, as the teaching progression through the books identifies the next step on the next teaching day.

To ensure that marking aids progression and adds to the teacher assessment of the children's understanding, a key should be used to support marking. This should be indicated on the page of the children's work.

- S – Supported for this question
- G - Guided work in a group
- I - For questions completed independently in guided group/intervention
- T - Talked to the child/gave verbal feedback

Indicate daily which children have had intervention by noting 'Intervention' or 'Int' at the beginning of their page in the workbook.

Journals

Children's journals could be another method of assessment for the teacher. As in the workbook, teachers may have the opportunity to see these during a lesson but this will not always be possible.

When marking journals, these again do not need a next step. They can be marked by assessing the child's understanding and depth of knowledge, and a detailed comment should only be used if there is a misconception obvious.

Where misconceptions are found, best practise is to spend time with these children in intervention time during the day.

Journals do not all have to be marked daily. A suggestion for marking is to mark one group each day, taking into account all journaling from the previous week.



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How and when is the subject assessed?

The assessment policy for maths is in line with the school assessment policy and summative assessments should be made as stated.

To supplement and support assessment in maths, the reviews and revision pages can be a good indicator of how well children have grasped a concept.

Teachers should keep a record of how children have performed on each of these reviews in their assessment file. This does not need to be a numerical score or percentage. An arrow indicating deep knowledge (↑) or struggling (↓) should be sufficient, with most children being average and not needing a comment. Teachers may supplement this with additional notes if necessary. (See appendix 1)

Additionally teachers are encouraged to use the NCETM resources 'Teaching for Mastery' documents which contain year group appropriate questions to assess children's deep understanding of the concept. These can be done in small groups or as a class on whiteboards but should inform teachers' judgements of their understanding. Notes can also be kept on the assessment sheet. (Appendix 1)

This information and record keeping is essential when coming to assessing children against the KLIPs.

Additionally, low-stakes testing should be used to regularly assess progress in certain areas, for example number bonds, times tables. Low-stakes testing helps children with their memorisation of key concepts and emphasises to them what they do know.

How do assessments impact future learning?

Learning in Maths is ongoing and as such these assessments inform our daily maths planning interventions so that any gaps that have been found in previous units can be tackled as soon as possible. It is of the utmost importance that we tackle gaps and misconceptions as quickly as possible so that it does not have any impact on their future learning.

How and when is the curriculum map reviewed?

We review the curriculum each year. We look at the data from the year groups as well as pupil and parent attitudes. From this we discuss any changes that need to be made and put these into the action plan.



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