



ST PAUL'S CRAY CE PRIMARY SCHOOL

MATHEMATICS POLICY

JULY 2022

'Many children are trained to do calculations rather than being educated to think mathematically'
(Noyles, 2007 pg.11)

Amadeus

Primary Academies Trust



Limitless Learning Together

MATHEMATICS POLICY

SCHOOL POLICY STATEMENT

This Policy for Mathematics reflects the current philosophy and agreed practice of all staff at St Paul's Cray CE Primary School. It also reflects the statutory requirements of The National Curriculum and takes into consideration Curriculum Guidance for the Foundation Years

Mathematics is a creative and highly interconnected 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.

1. AIMS

We aim to ensure that all pupils:

- Enjoy and are enthused by maths
- Are challenged in their thinking at a level appropriate to them
- Have a good understanding of the basic foundations of maths which can be built upon throughout the year and the school.
- Understand that maths crosses and is relevant in all other subjects
- Understand the importance and relevance of maths in the wider world and its application in the work place
- Develop resilience and confidence when tackling problems. They should always be eager to 'Have a go'
- Can identify patterns and relationships and make predictions from these
- Can reason and explain how they got the answer and justify their approach to it
- Can apply mental agility with number, recognising and using relationships.
- Fulfil their potential as mathematicians regardless of their race, gender, different abilities and special education needs.
- Are encouraged at home to utilise their maths skills within a meaningful context

2. LEARNING AND TEACHING

Nursery and Reception

At St. Paul's Cray the pupils in the Early Years Foundation Stage use the Early Years outcomes. Mathematics involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shapes, spaces, and measures. Emphasis is placed on the use of mathematical language and the practical investigation of number.

This involves 2 specific areas:

Numbers: children count reliably with numbers from 1 to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and

subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.

Shape, space and measures: children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

There is a focus on activities that are practical, imaginative and enjoyable. Mathematical understanding is developed through stories, songs, rhymes, games, outdoor learning and imaginative play.

Key stages 1 and 2

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils 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.

At St Paul's Cray CE Primary we recognise the importance of modelling and re-enforcing the language of mathematics in order to develop the children's ability to communicate and reason, and explain their answers. This is a vital skill if children are to successfully use and apply their mathematical knowledge and understanding in real-life contexts and problem solving therefore is an integral part of the daily maths lesson.

Children will progress through the school using concrete materials e.g. cubes, Cuisenaire, Diennes, Numicon, place value counters etc. to develop conceptual understanding before representing the problem pictorially. Once confidence and understanding has been established the children will move onto abstract representations (e.g. number sentences and calculations) which directly link in with the concrete and pictorial representations. This will always be taught in an inclusive environment allowing children to gain confidence and understanding before moving onto abstract representations (see Appendix 1 and 2). Children who grasp the concepts quickly will be challenged by moving onto the abstract. All children should be able to justify verbally and in writing their approach. Open-ended questions will be used in the whole class setting daily to allow all children to explore and deepen their mathematical understanding (see Appendix 3)

3. PLANNING, ASSESSMENT AND EVALUATION

Medium and Long Term Planning

In order for the children to acquire key mathematical concepts and skills effectively, careful and comprehensive planning is essential. This planning will be completed for each year group, including Foundation Stage. Medium and Long term planning gives an overview using the structure provided by the White Rose maths hub scheme. Medium term planning provides clear teaching objectives. Weekly planning gives precise plans for the daily maths lesson, beginning with open ended questions and then further work to develop fluency, problem solving and reasoning. Planning is evaluated by the teachers and monitored by the Subject Leader and Head Teacher.

The key elements of good planning are:

- Taking small progressive steps on which children can consolidate and build upon their previous understanding.
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- Utilising concrete, pictorial and abstract approach
- High quality questions are planned in the plenary to allow the teacher to make an informed judgement on how all children have progressed in their understanding and usage of the learning objective
- Demonstrating several times across the week elements of fluency, reasoning and solving problems.

Weekly lesson planning expectations in KS1 and KS2:

- Clear, age appropriate objectives following the White Rose scheme.
- Key vocabulary and language structures and clearly identified opportunities for paired talk and speaking and listening. Guided Talk sessions should be included, where a small group of children are guided by the class teacher in the use of specific mathematical vocabulary and language.
- Appropriately differentiated activities for the oral and mental starters and the main teaching sessions linked to the concrete, pictorial and abstract approach
- Appropriate resources, models and images, including ICT, to support learning and teaching.
- Brief details of how the class is to be organised, including the deployment of support staff and the group to be supported by the class teacher.
- The management and support of mixed ability groupings
- Purposeful plenary which consolidates the main teaching objective.
- Planning needs to be adaptable and annotated if necessary to meet the needs of the children.
- Planning includes a separate document highlighting children who have exceeded the objective, those who haven't reached the objective and those absent. This will then allow the teacher to inform next day planning and mobility of groupings.
- Weekly lesson plans and assessment sheets are photocopied at the end of the week in Planning folder kept in office
- In addition to the daily maths lesson additional interventions are planned to meet individual children's and groups of children gaps in knowledge and understanding. The progress of these children are constantly under review by the class teacher, maths coordinator and Inclusion manager. These interventions can take the form of group support, 1:1 tuition or online tuition using Third Space learning. Parents are informed if their child are receiving these interventions

Assessment

Teachers will use a range of approaches to assess progress

- Assessment for learning is an ongoing process and teachers are responsible for reviewing their class's progress in relation to the learning objectives. Teachers assess by exception on a daily and weekly basis and will use this to inform their planning.
 - Statements in Target Tracker tool will be highlighted weekly to provide information on progress and used as a gap analysis to inform future planning
 - Half termly assessment using I pads and Renaissance learning app. highlight child's individual weaknesses and strengths.
 - End of term assessments using White Rose materials
 - All these assessments will inform teachers of gaps in children's knowledge and aid them in planning for necessary interventions
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- Times tables tests and arithmetic and mental maths (alternate weeks) need to be tested weekly. Answers and the subsequent errors are analysed as part of the teachers marking and not in lesson time. The errors are then picked up in subsequent planning in a teaching context.

4. LESSON STRUCTURE

We provide a daily maths lesson lasting for approximately an hour. The structure of the lesson will broadly follow an oral mental starter, teaching of the main objective and a plenary. However, the structure is flexible depending on the objective to be taught.

The class teacher will work with a certain planned group during the main activity to assess, use guided talk to develop mathematical language, demonstrate a method in a smaller group setting, question, explain, scaffold or discuss mathematical ideas.

Children should always be aware of and understand the learning objective of each lesson. It needs to be written on the board and in their books. The learning objective should also be returned to in the plenary and referred to in the teacher's marking and/or feed back. Twice a week the teacher will mark with an orange highlighter next step marking. This is personal to each child's work depending on whether understanding of a concept away from the lesson needs to be clarified or to take them onto the next progressive step within that learning objective.

5. RESOURCES

The National Curriculum, White Rose, NCETM and NRich provides extensive guidance on the use of appropriate resources, models, images and ICT to support learning and teaching. These resources should generally be readily accessible within the classroom for the children. Resources are regularly monitored by the Key Stage Maths Leader to ensure that staff have the equipment necessary to deliver the lesson objectives.

6. NATIONAL CURRICULUM STATUTORY ASSESSMENT TASKS AND TESTS

At the end of Key Stage 1 and 2 the children currently undertake the statutory national summative tests. These tests measure the performance of the children against national and local norms.

There are also end of term and year White Rose assessments for all other age groups. This is used to make an accurate assessment for the end of year teacher assessment along with knowledge of the child's standardised score from the renaissance tests

7. PARENTS AND HOMEWORK

Parents are warmly welcomed in the school to a class meeting, generally in the autumn term, where each class teacher will demonstrate the mode of teaching for that particular year group leading to fluency, problem solving and reasoning. The mathematical work their children will be covering every term will be shown in the termly newsletters and curricular jigsaw on the website. Mathematics should be part of the work the children are asked to do at home. Home study should be linked with the learning outcomes of the week and should be discussed and modelled with the children in the lessons. Also children are encouraged to access the website where mathematical games are ;they also have access to Studyzone via an individual Q code so that they can practise their times tables in a fun way. The class teachers get reports weekly from Studyzone

indicating individual child's progress. Statutory testing of times tables will commence in summer 2019 for year 6.

8. THE ROLE OF THE SUBJECT LEADER

The Subject Leader is available to advise and support any member of staff on all aspects of planning, assessment and use of teaching strategies and resources. The Subject Leader will also endeavour to keep up to date with developments in mathematics and to co-ordinate, plan and lead in-service training as required.

As part of their duties the Subject Leader will also monitor the implementation of the National Curriculum requirements and promote opportunities for teaching mathematics across all subjects and within outside learning. The Subject Leader is also responsible for maths resources within the school.

9. REVIEW

This mathematics policy will be reviewed by the Subject Leader and the Senior Management every two years.

[Appendix 1 calculation policy.pdf](#)

[Appendix 2 Calculation policy guidance.pdf](#)

[Appendix 3 Oral and Mental Starters](#)
