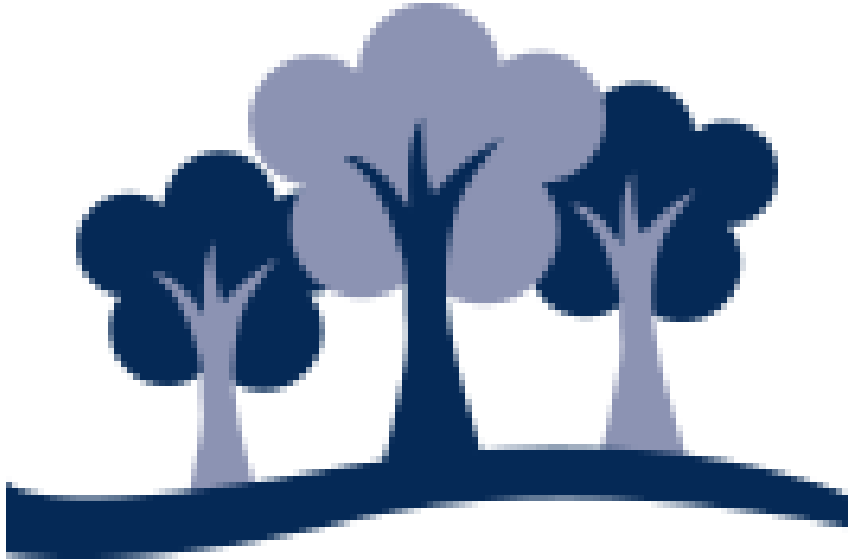


# Palace Wood Primary School

## Maths Policy



<b>Written by</b>	Emily Homewood
<b>Ratified by Governors</b>	Autumn 2020
<b>Date for Review</b>	Autumn 2023

This policy has been impact assessed by Emma Ridout in order to ensure that it does not have an adverse effect on race, gender or disability equality

### **Purpose of Study:**

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.

### **Aims**

Palace Wood Primary School's aim is for all pupils to:

- develop their fluency, reasons and problem solving skills in mathematics:
  1. *become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.*
  2. ***reason** mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language*
  3. *can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions*
- gain factual (I know that...), procedural (I know how...) and conceptual (I know why...) understanding of mathematics.
- enjoy mathematics, be successful and have a positive attitude to the subject
- use appropriate mathematical vocabulary with confidence
- be able to demonstrate their skills and knowledge and talk about their work using appropriate mathematical language
- be able to see the importance of mathematics to their future lives
- use mathematics as part of their everyday life in school and at home

### **Objectives**

- to ensure that all pupils follow a broad and balanced mathematics program based on the requirements of the new National Curriculum (Sept 2014)
- to ensure that all pupils are provided with interesting and challenging tasks that enable them to achieve standards commensurate with their abilities and potential
- to ensure that pupils can work individually, collaboratively in groups and within the whole class (where possible)
- to allow pupils to develop as independent learners, able to make decisions about their own work

- to enable pupils to master the curriculum through reasoning and problem solving throughout all areas of the mathematics curriculum

### **Mathematics in the Foundation Stage:**

Problem Solving, Reasoning and Maths is developed throughout the Foundation Stage, through

- the routine of the day
- whole class counting, songs and rhymes
- adult led guided group work
- child initiated activities
- the learning environment, inside and out
- questioning and discussion
- opportunities for solving 'real life' problems

### **Organisation in KS1 and KS2**

Children are taught as classes in mixed ability.

Children are taught maths everyday (or, where appropriate, lessons are blocked but still with a minimum of 5 hours per week).

### **Principles of Teaching and Learning**

In order to deliver the curriculum we use the programmes of study, the NCETM progression documents and the Palace Wood progression documents to track pupil's ability and set them appropriately challenging work. We follow the philosophy of the curriculum – pupils should be fluent, reason mathematically and solve problems. We believe that all children, regardless of ability, should be provided the opportunity to reason and problem solve regularly.

### **Planning**

The curriculum content for each year group will cover all aspects of the subject, including number, measurement and geometry. Children in Key Stage Two will also be taught statistics. Children will develop their mathematical fluency of key concepts and methods alongside planned opportunities to apply their reasoning to solve problems.

In order for children to have an effective learning experience, each lesson must be well planned. At Palace Wood, teachers have the opportunity to design and plan lessons in whichever form suits the needs of the children best. It is the expectation, however, that all lessons are clearly planned (in whatever form this may take) and that any activities should be specifically planned to build on the children's prior learning. The planning process is personal to each teacher but all teachers should be able to discuss the rationale behind lessons they teach and what the next steps should be for the children. Planning should happen flexibly and be adapted accordingly, reflecting the previous lessons outcomes. Lessons will be built upon one and other allowing for mastery of the subject. Fluency, reasoning and problem solving will all be included in all lessons for all children. It is for this reason that topics may last longer. Children will understand the importance in being able to explain their understanding thoroughly.

Teachers use a wide range of resources to plan such as the White Rose Maths hub,

Nrich, NCETM, progression of skills documents from the NCETM, Classroom Secrets Oxford Owl Mastery documents. Teachers will broadly follow the lesson order set out by White Rose unless otherwise discussed.

### **Lesson structure**

The structure of maths lessons should be dependent on the teacher and the children in that classroom so, for that reason, it is flexible. Time should be built in for carefully planned recall to embed the children's understanding. Every lesson should include fluency, reasoning and problem solving for all children of all abilities. Throughout the week there will be a variety of approaches to maintain the enthusiasm and interest of the pupils.

Teaching will be oral and interactive. It will involve different elements:

- modelling – showing how to
- explanation – giving examples, giving NOT examples
- questioning – challenging understanding, reasoning
- discussion and evaluation – talking about methods, learning through misconceptions, developing mathematical language, working systematically, generalizing
- guided group teaching where appropriate

The aim of all lessons is to secure the best possible progress for all pupils.

### **Assessment, Recording & Reporting**

Teachers are expected to make regular assessments of pupils' progress and record them systematically.

They follow the school's assessment policy.

This involves:

- informal and formal testing of mental recall and mental calculation, given orally and through written work
- ongoing assessment for each pupil using target tracker
- formal assessments when deemed appropriate by the teacher
- End of Key Stage statutory SATS in Maths
- Foundation Stage Profile
- reporting pupil progress to parents during parents' evenings and through 'End of Year' reports

### **Cross-curricular Skills and Links**

Mathematics is frequently used in other curriculum subjects and it is important that children get the chance to emphasize and build on this opportunity. Therefore, mathematical skills will be practiced which will support ideas and activities in other subjects. Examples include measuring in technology, charts and graphs in science and geography, time and dates in history, patterns in art, music, and dance, and scoring and counting in physical education.

### **Resourcing**

An annual review of resources is overseen by the maths co-ordinator and new stock is ordered as appropriate. There are central stores of materials for both key stages.

Some equipment is stored within each classroom and should be well labelled and easy for children to access.

### **Differentiation and Special Educational Needs**

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.

The children are able to choose their level of challenge (with guidance from the teacher when needed). Children may find different aspects of maths more challenging than others and this therefore allows the children to either stretch themselves or scaffold their learning where appropriate. It is for this reason that there should be no set ability grouping within a classroom. **Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems and reasoning 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.

Teaching is organised to enable pupils of all abilities access to the learning. Teachers are to have high expectations and these expectations need to be discussed and reviewed with the pupils regularly.

Pupils with SEN are sometimes supported within class by the learning support staff. Mathematics targets are featured on the Provision map of pupils with mathematical SEN. Teachers will monitor the progress of individuals or groups of children and act upon any underachievement which presents itself.

Children who are identified through pupil tracking as stalling or 'falling behind' should be broadly addressed during maths lessons as deemed appropriate by the class teacher.

### **Rapid Graspers**

Children who are rapid graspers and exceeding at mathematics should be identified by their teacher. Provision should be made to include rapid graspers within class lessons and provide challenges that allow them to challenge themselves. Additional problem solving, mastery at greater depth and investigative work should be given, rather than more of what they can already do or simply larger or more complex numbers. The school provides additional activities for more skilled mathematicians such as able maths day and an annual Maths competition at Oakwood Park Grammar School.

### **Equal Opportunities**

There is a school equal opportunities policy which is applied to mathematics. Teaching materials are chosen to reflect the cultural and ethnic diversity of our society. We try to avoid stereotyping through gender or race. Pupils' performance is monitored to ensure that no group of pupils is disadvantaged. In lessons, the full participation of both girls and boys is encouraged and care is taken to ensure that the emphasis on whole class teaching does not disadvantage any gender group.

### **Health & safety**

In line with the school's health and safety policy, children are instructed in the safe use of all equipment. In particular, extra care should be taken when using heavy weights with balances on the floor. Care needs to be taken when younger children are using small apparatus such as counting objects. Children working outside the classroom will work in pairs or groups and be supervised by an appropriate adult.