



# Palmers Cross Primary School Maths Policy

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This policy sets out Palmers Cross Primary School's approach to the Mathematics curriculum.

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## Context

### **Palmer Cross School - Our Shared Vision:**

Palmers Cross Primary is a school where all learners are happy, in an environment based on trust and support. We will settle for nothing less than excellence in our drive for achievement wherever this can be found.

### **Pupils:**

- Are happy and secure in school and in their learning.
- Feel valued and develop as independent learners.
- Behave well, are respectful and polite and take responsibility for their actions.
- Enjoy their learning and are well motivated to fully achieve their potential whatever their background and ability.
- Are kind and caring towards each other, taking pride in their own heritage and cultural tradition whilst being understanding and tolerant of others.
- Become technologically confident and cope in an increasingly sophisticated world.
- Are hardworking and well-motivated looking at ways to improve their own performance.
- Develop their self-esteem and take pleasure in the success of others.

## Intent

To ensure that all children from EYFS to Year 6 become fluent and confident in the basics of Mathematics, through well-planned engaging activities. Children will develop their understanding, the ability to recall and apply knowledge rapidly and accurately. This in turn is to support children in developing their ability to reason and problem solve through the use of a range of mental and formal written strategies (see separate Calculation and Mental Calculation policies). We actively encourage our parents and carers to become involved in their children's Mathematics learning in a variety of ways e.g. Parent Workshops. Our curriculum enables all children to be confident in applying taught strategies to increasingly complex problems. This includes the use of Mathematics in a wider range of subjects across the wider curriculum including Science. With this in mind, we encourage resilience, and acceptance that being challenged is often a necessary step in learning. Teachers plan sequences of lessons to suit the needs of all pupils, particularly disadvantaged and SEND, ensuring that all children can reach their full potential. Children will leave Palmers Cross with the confidence and ability to tackle mathematical problems and to continue their Mathematical learning in the next stage of their education.

## Implementation

### **Legislation and guidance**

This policy reflects the requirements of the [National Curriculum programmes of study](#).

It also reflects the requirements for inclusion and equality as set out in the [Special Educational Needs and Disability Code of Practise 2015](#) and [Equality Act 2010](#), and refers to curriculum-related expectations of governing boards set out in the [Department for Education Governance Handbook](#).

## **Inclusion**

All children are presented with the opportunity to experience success, regardless of race, ethnicity, gender, ability or disability. Pupils are expected to produce work to the best of their ability and learning opportunities are tailored to match the needs of all pupils.

Teachers set high expectations for all pupils, using assessment information to plan challenging work for all groups, including:

- More able pupils
- Pupils with low prior attainment
- Pupils from disadvantaged backgrounds
- Pupils with SEND
- Pupils with English as an additional language (EAL)

Further information can be found in our SEND policy.

## **Home Links**

At Palmers Cross we recognise the important role that family make to a child's education. Therefore, we include them in a variety of ways. Regular Mathematics homework is provided, which reflects what pupils have been learning within school. We include our policies on the school website so that families can support their children when learning at home. Throughout the school year, parents of different year groups are invited in to school to participate in a range of Mathematics workshops where they can participate in a variety of activities that their children may be undertaking.

## **British Values**

At Palmers Cross we recognise the importance of teaching British values in line with the definitions identified in the 'Prevent Strategy Values' 2011.

## **Health and Safety**

Staff at Palmers Cross work in accordance with Health and Safety Guidelines; more information can be found in the Health and Safety Policy. Health and safety has been considered for all subjects and risk assessments can be found in the Health and Safety folder in the main office.

With any practical activity there can be an element of risk. To minimise this:

- Children should be taught to manage their environment to ensure the health and safety of themselves and others
- Materials/equipment should be stored in a safe and appropriate area of the classroom.
- All children must be taught how to use materials and tools correctly and safely
- Children should be taught to recognise and consider hazards and risks and to take action to control these risks, having followed simple instructions
- Children should be strictly supervised in their use of equipment at all times.

- Teachers should make sure children are aware of the need to maintain tools carefully and to return them to the correct location.
- Any cutting tools should only be used under adult supervision.
- Glass containers should not be used for water to prevent any unnecessary hazards.
- If any spillages occur they must be cleared immediately to prevent the possibility of children slipping.
- Any new materials to be used should be checked by the class teacher prior to use within the classroom.

## Impact

### **Assessment, Reporting and Recording**

Teachers regularly assess pupils' achievement of learning objectives through observation and marking of work. Feedback is given verbally and also recorded in books in line with our Marking Policy. Planning will be annotated with reference to children's acquisition of knowledge and development of skills.

ARE statements are used by teachers to assess pupils' achievement every half term and progress meetings are held termly to discuss the attainment and progress of pupils. Assessment is completed for one representative pupil from each ability group in the class. Objectives are dated and ability groups are awarded: Beginning (B), Developing (D) or Secure (S) for each objective covered within the ARE that they are working within. At the end of the year, teachers use this information to give a formal end of year assessment for each individual child in their class. For further information, please see the Assessment Policy.

Teachers assess on a daily basis through discussions and marking books. Year 2 to 5 use bespoke Testbase mathematical assessments termly, which support teachers with planning and allow learners to apply their knowledge to more complex problems.

Pupil achievement is shared with parents through termly consultation evenings and in pupils' end of year reports.

Assessment information is used by class teachers to ensure that future planning matches the needs of pupils. This information is then passed up to the next year group to support planning.

It is also used by the subject leader, alongside other monitoring information, to identify effective teaching and learning and any next steps.

Subject leaders are responsible for ensuring teaching and learning in their subject is of the highest quality. They will write an action plan which states the overall objective and targets for their subject alongside actions to achieve this. The impact of teaching and learning in their subject will be monitored and further actions planned to address any next steps.

Monitoring may include:

- Book trawls
- Monitoring of planning
- Lesson observations
- Pupil conversations

- Surveys of the learning environment including displays
- Moderation across the school and Trust
- Scrutiny of assessment data
- Staff questionnaires

### **The role of the Subject Leader**

- Provide leadership and direction for a specified subject area; leading and coordinating the teaching and learning of the subject.
- Contribute to the school's programme of monitoring and evaluation of learning and teaching and standards attained by pupils within the specified subject
- Support and observe the teaching of the specified subject across the school encouraging the evaluation and sharing of good practice
- Monitor Teacher Assessment data within specified subject on a regular basis providing support for teachers
- Lead the analysis of appropriate data; creating reports and action plans for a range of audiences; SLT, Governors, School Improvement Advisor etc....
- Lead and manage the schools response to CPD for the specified subject
- Alongside SLT establish resource priorities and monitor the effectiveness of resource usage and spending
- Have total support of the school aims and ethos and the leadership drive to ensure them.
- Act as a role model for others through the setting of high personal standards of classroom practice. These to include the development of an effective learning environment that fosters high standards of achievement and behaviour.
- Undertake any other duties or responsibilities which may be reasonably regarded as within the nature of the post or determined by the Headteacher

### **Documents to be read in conjunction with this policy:**

National Curriculum 2014	Calculation policy	Mental calculation policy
Bar model policy	Times Table overview	Teaching and Learning policy
School marking policy	Assessment cycle	Mathematics long term plan
Mathematics medium term plan	SEND policy	

## Early Maths - EYFS

<b>Intent</b>	<b>Implementation</b>	<b>Impact</b>
<p>The statutory framework for the EYFS states that: ‘Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically.’ 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.</p> <p>Additionally, we aim to:</p> <ul style="list-style-type: none"> <li>• Equip pupils with the confidence and skills to attempt increasingly difficult problems with a partner or independently, and develop mastery of skills.</li> <li>• Link Mathematics with other areas of the EYFS curriculum to embed the skills that have been taught.</li> <li>• Develop positive attitudes and an interest in Mathematics.</li> <li>• Provide pupils with the confidence to ‘have a go’ and not be afraid to make mistakes.</li> <li>• Develop appropriate vocabulary to access and discuss their learning.</li> </ul>	<p>In EYFS, Mathematics is interwoven within the learning environment of the children e.g. ensuring that the environment is set up in learning areas so that children can locate equipment and resources independently. This will ensure that pupils develop a deep understanding of numbers, including ‘Subitizing’, which they can apply to daily tasks and through other areas of the curriculum.</p> <p>Mathematics within nursery is implemented through a variety of child initiated learning and adult-directed activities. Staff are trained in the use of open ended questions to ensure that no learning opportunity is missed.</p> <p>The adult-led Mathematics within Reception is taught in a more formal manner, when appropriate for pupils, where ability groups are used to ensure that all pupils receive the appropriate teaching. This has a ‘sequential teaching focus’ to ensure that essential building blocks are achieved and embedded. Alongside this, children continue to have the opportunity to develop their mathematical skills during child initiated learning. Mathematics is taught through weekly blocks of learning which create a comprehensive LTP covering all relevant AREs and learning outcomes from the EYFS curriculum.</p> <p>Staff ensure that the learning of all pupils is underpinned by the following characteristics of effective learning:</p> <ul style="list-style-type: none"> <li>• Playing &amp; exploring: engagement, finding out, exploring, willing to have a go</li> <li>• Active learning - motivation, involved and concentrating, trying, enjoying, achieving</li> <li>• Creating &amp; thinking critically - own ideas, making links, choosing ways to do things</li> </ul> <p>Observations in the form of written and photographic evidence, including pupil/teacher discussion, are compiled in individual learning journeys, assessment files and books.</p>	<p>Pupils will:</p> <p>Have a ‘deep understanding of numbers’ and their composition to equip them to use their skills in order to solve problems, calculations and apply this to other areas of learning.</p> <p>Develop effective spatial reasoning skills which can apply to learning focussed upon shape, space and measures.</p> <p>Demonstrate positive attitudes towards Mathematics and be confident learners who are willing to ‘have a go’ and not be afraid to make mistakes.</p> <p>Be competent in using a range of appropriate Mathematical vocabulary in order to access their learning and discuss their work.</p> <p>*Monitoring will assess the effectiveness of teaching and learning on pupil outcomes and next steps will be addressed appropriately.</p>

### **Documents to be read in conjunction with this policy:**

Early Years Foundation Stage Framework

Development Matters

EYFS policy

Calculation policy

EYFS Long Term Plan

## Maths Lesson – KS1 & KS2

<b>Intent</b>	<b>Implementation</b>	<b>Impact</b>
<p>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.</p> <p>The national curriculum for Maths aims to ensure that all pupils:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language</li> <li>• 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</li> </ul> <p>Additionally, we aim to ensure pupils:</p> <ul style="list-style-type: none"> <li>• Have the building blocks that they need in order to choose the most appropriate method when completing a task or solving a problem</li> <li>• Build resilience and independence when faced with difficult problems by teachers incorporating reasoning and problem solving in Mathematics lessons</li> </ul>	<p>The Mathematics long term plan is a curriculum of blocked units, allowing key arithmetic skills to be re-visited throughout the year and embedded through the different units of work. Year group teams refer to the medium term plan to ensure a progressive sequence of lessons is planned out for each blocked unit.</p> <p>Planning will take account of pupil's experiences and capabilities and the long and medium term plans ensure that all of the requirements in the individual year group's programme of study from the National Curriculum 2014 are taught within each year.</p> <p>Each lesson will have an OMS (Oral and Mental Starter) which will have a clear LO (Learning Objective) to enable pupils to rehearse key mental maths skills, re-visit prior learning, overcome misconceptions. Wherever possible, the OMS should link to learning in the main Mathematics lesson.</p> <p>A clear LO and set of STL (steps to learning) are expected for every lesson and for each ability group with classes. All AREs are broken down into smaller, achievable LOs when planning lessons. Staff plan appropriate and engaging activities that enable all pupils to demonstrate their fluency, reasoning and problem solving activities. White Rose Maths documents are used to support teachers in planning activities, particularly reasoning and problem solving.</p> <p>We will use a variety of teaching methods to support and engage all of the children, including:-</p> <ul style="list-style-type: none"> <li>• Clear modelling</li> <li>• Visual aids</li> <li>• Partner work</li> <li>• Practical activities</li> <li>• Pupil explanations</li> <li>• Opportunities to problem solve and reason by following a line of enquiry</li> <li>• Repetition (particularly during OMS)</li> </ul>	<p>Learners will make progress over time reaching aspirational targets and therefore achieving Age Related Expectations.</p> <p>They will become confident, fluent mathematicians having the skills to answer a range of mathematical questions.</p> <p>Learners will be equipped with the necessary skills to continue their mathematical journey into secondary school and beyond.</p> <p>Maths is assessed as explained above in <u>Assessment, Reporting and Recording</u>.</p> <p>Monitoring will assess the effectiveness of teaching and learning on pupil outcomes and next steps will be addressed appropriately.</p>

**Documents to be read in conjunction with this policy:**

Maths National Curriculum 2014 Mathematics long term plan

Mathematics medium term plan

Calculation policy

Mental calculation policy

Bar model policy



## Arithmetic

<b>Intent</b>	<b>Implementation</b>	<b>Impact</b>
<p>The national curriculum for Maths aims to ensure that all pupils:</p> <ul style="list-style-type: none"> <li>• 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</li> </ul> <p>Dedicated arithmetic lessons, means that we will be able to ensure that pupils are fluent in a variety of mental and written calculation methods that will support them as they progress through the Primary National Curriculum and beyond. It is important that pupils are taught, and re-visit, a range of mental and written strategies to ensure key learning is embedded over time. Weekly arithmetic lessons gives the pupils the opportunity to practise and perfect the different methods that they are taught in order to ensure that they are capable of identifying the most appropriate method to use in a range of contexts.</p>	<p>Arithmetic will be planned and taught during one Mathematics lesson per week in addition to the focused lessons as explained above.</p> <p>Arithmetic skills will be introduced progressively, supporting learning taught weekly based on blocks from the long term plan. Teachers will have the opportunity to be able to teach and re-visit fundamental skills presented in a variety of ways. This is based upon on-going formative assessment of pupils. Teachers will use our arithmetic checklist to ensure a range of skills are taught progressively and provide a guide for which skills should be embedded by the end of the academic year.</p> <p>A variety of teaching methods are used to ensure that the building blocks that the pupils need are embedded:</p> <ul style="list-style-type: none"> <li>• Clear and consistent modelling</li> <li>• Visual aids</li> <li>• Pupil explanations</li> <li>• Peer support</li> </ul> <p>Arithmetic work is recorded in Maths books, with a learning objective demonstrating the focus of the lesson.</p> <p>Arithmetic will be marked by the teacher, pupil or peer assessed. Marking will be used to ensure future planning meets the needs of pupils.</p>	<p>Learners will develop and embed a range of written number calculations including fractions, decimals and percentages enabling them to use formal written methods accurately as well as developing their mental strategies. Learners will be able to use these skills in everyday life situations confidently.</p> <p>Maths is assessed as explained above in <u>Assessment, Reporting and Recording</u>.</p> <p>Monitoring will assess the effectiveness of teaching and learning on pupil outcomes and next steps will be addressed appropriately.</p>

**Documents to be read in conjunction with this policy:**

Maths National Curriculum 2014

Calculation policy

Mental calculation policy

Bar model policy

Arithmetic checklists

## Times Tables

<b>Intent</b>	<b>Implementation</b>	<b>Impact</b>
<p>The national curriculum for Maths aims to ensure that all pupils:</p> <ul style="list-style-type: none"> <li>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</li> </ul> <p>The introduction of the MTC (Multiplication Tables Check) is to support schools in identifying pupils who need additional support. The purpose of the MTC is to determine whether pupils can recall their times tables fluently, which is essential for future successes in mathematics. The rapid recall of times tables are key to ensure a solid foundation in multiplication knowledge and understanding their related facts. By the end of Year 4, children should be able to recall up to 12 x 12 rapidly and fluently.</p>	<p>Times tables are delivered through Mathematics lessons. Teachers will be able to use main lessons, OMS and arithmetic lessons to ensure that times tables are being revisited regularly to allow for rapid recall.</p> <p>Times tables are taught at an appropriate level depending on each child's starting point. However, we aim for all children to be able to recall the following times tables by the end of the academic year:</p> <ul style="list-style-type: none"> <li>Year 2: x2 x5 x 10 moving on to x3 x4 later in year;</li> <li>Year 3: x6 x7 x8 x9 and as above to reinforce;</li> <li>Year 4: x11 x12 and as above to reinforce;</li> <li>Year 5: recall related division facts;</li> <li>Year 6: application questions.</li> </ul> <p>A variety of activities are used within lessons to engage pupils when recalling times tables, including:</p> <ul style="list-style-type: none"> <li>Loop cards</li> <li>Songs</li> <li>Board games</li> <li>Oral games e.g. fizz buzz</li> <li>Online games</li> </ul> <p>Times Table Superhero sheets are used weekly from Year 1 upwards to enable children to rehearse recall of times tables. Once they achieve 100% accuracy, they move onto the next Superhero Challenge. Additionally, Times Table Rockstars are used across Key Stage Two to develop rapid recall. Logins are provided for children to be able to play and compete at home.</p>	<p>Learners will be more confident with recalling multiplication facts rapidly and accurately in readiness for the Year 4 Multiplication Check in Summer Term. This will also develop their wider mathematical knowledge using and applying these skills to other concepts.</p> <p>Times Tables Rock Stars and Superheroes Times Tables is used as regular assessment to determine where pupils need additional support.</p> <p>Mathematics is assessed as explained above in <a href="#"><u>Assessment, Reporting and Recording</u></a>.</p> <p>Monitoring will assess the effectiveness of teaching and learning on pupil outcomes and next steps will be addressed appropriately.</p>

### **Documents to be read in conjunction with this policy:**

Maths National Curriculum 2014

Multiplication Times Table check assessment framework – Gov.uk

Times Table Overview