

Windmill Hill Primary School

Policy Document

MATHS POLICY

	Adoption date	October 2015	
	Governors' meeting / minute number	Reviewed Sept 2017 Learning & Engagement	
	Staff member responsible	C Lunn	
	Governor responsible	K Gleave	
	Statutory / school policy	School	
	Review period / date	Annual Sept 2018	
	Chair of Governor's signature	K Davison	
	Headteacher's signature	J Grantham	

Windmill Hill Primary School Mathematics Policy

Rationale:

At Windmill Hill Primary School we aim to inspire all children to reach their full academic potential. In mathematics this means ensuring a mastery curriculum that is fully inclusive of all children which:

- Develops children's knowledge and understanding of Mathematical concepts whilst enabling them to practice and hone skills and methods;
- Enables them to reason and think critically and communicate their understanding;
- Gives them opportunities to apply learnt mathematical skills in different contexts across the curriculum.
- Provides opportunities to develop problem solving skills useful for maths, other curriculum areas and for real life.

As a result of their learning in mathematics and problem solving across the curriculum children will:

- Be prepared for applying their skills effectively in everyday life situations, in future learning and in the work place.
- Have the building blocks in place and to provide a solid foundation to lead onto secondary, further and higher education.

Through teaching with a mastery approach, children will learn to understand, distil and clarify information; consider what they know that will help them to solve problems, realising what they need to know next; create systems and strategies, organising information in a way that helps find patterns and ultimately solutions and to communicate and present their findings effectively.

Planning

Planning begins from a thorough understanding of children's needs gained through effective and rigorous assessment and tracking, combined with high expectations and ambition for all children to achieve.

Long Term and Medium term planning will outline the areas of mathematics that will be taught during the term to ensure coverage of the National Curriculum. All year groups are taught stage expected objectives.

Within short term planning, clear success criteria for each learning objective taught should be created - demonstrating the progression needed to reach and exceed the objective and to further deepen knowledge. This will enable the class teacher to follow a clear and systematic teaching sequence, to allow children to become fluent and secure in their mathematical knowledge.

Planning, where possible, should involve real life contexts for maths, where children are problem solving with a purpose in mind. There should be opportunities for reasoning and investigations to practice different elements of problem solving, including: finding all possibilities, logic problems, finding rules and describing patterns, explaining inaccuracies, diagram/visual problems and exploring different aspects of number.

The new Mathematics Curriculum is a mastery one. Therefore progress in mathematics learning each year is assessed according to the extent to which pupils are gaining a deep understanding of the content taught for that year, resulting in sustainable knowledge and skills. Key measures of this are the ability to reason mathematically and to solve increasingly complex problems and doing so with fluency. Therefore class teachers should regularly plan for opportunities for children to apply their maths skills to different problems within maths lessons and across the curriculum. Opportunities are planned for children to apply their mathematical skills across Key Stages to deepen mathematical knowledge and understand the importance of maths in real life. This will also allow children

to revisit, practice and consolidate different areas of maths and apply them within different contexts and allowing their learning to go deeper.

Please see [Mastery at Windmill Hill](#) and [Mastery in Mathematics at Windmill Hill](#)

Teaching

In the Foundation Stage, children are given the opportunity to develop their understanding of number, measurement, pattern and shape and space through a combination of short, formal teaching sessions as well as a range of planned structured play situations, where there is plenty of scope for consolidation and exploration. (Following Development Matters in the EYFS)

Children will become very competent 'counters' so that their fluency with the number system provides a foundation for mathematical understanding. Counting forwards and backwards in many different sized steps as well as from different starting and ending points is essential.

Maths learning builds from a concrete understanding of concepts where children are manipulating objects. Practical equipment, including Numicon, is built into teaching and learning across all phases to enable this. When children are able to see concepts this way, they then need to understand the same concepts represented pictorially. Children are then ready for abstract representation before being able to apply their knowledge to different situations. Children should be encouraged at all times to communicate their understanding of maths so that it clarifies their thoughts.

Children's mental maths is of great importance, with number bonds, times tables facts and various strategies for calculation taught and practiced at school with support sought from parents through homework activities.

A progression towards efficient written calculations should be developed and applied consistently in each year-group. The school Calculation Policy should be followed to ensure this.

Both pre and post learning sessions, mental warm ups and interventions should be used to ensure objectives that have not been secured can be revisited and mastered.

Though the nature of lessons will be very different depending on the needs of the class, children should be: active; practicing skills they haven't yet mastered; learning something new OR learning to apply their knowledge to different contexts. They should be: 'doing' very quickly; working at a good pace and being productive; sharing their thoughts and methods and being successful.

When teaching problem solving skills across the curriculum, time (and sometimes whole lessons) should be given to each aspect of problem solving ensuring children get thorough practice at: 'preparing for problem solving', 'thinking through problems to establish what they know and don't know so far'; actually 'doing the problem solving' effectively AND 'communicating the answer effectively'. They should evaluate the process too. Over time children will improve at each aspect and gain a greater depth in their mathematical understanding.

Assessment

Assessment for learning should occur throughout the entire maths lesson, enabling teachers/teaching assistants to adapt their teaching/input to meet the children's needs. This feedback should be incisive and regular. On a daily basis children should self-assess against the learning objective and success criteria, giving them a sense of success. Children should know when they are meeting their objectives.

Pupil's work should be marked in line with the Marking and Feedback Policy and should model how corrections should be made, giving children a chance to learn from their misconceptions or incorrect methods. Opportunities to extend children's knowledge further should also be given in order to offer challenge and greater depth learning. Pre

and post learning and interventions should be identified, carried out and acknowledged by both teachers and children, in line with school policy.

Future lesson planning should depend on class success evaluated through marking and observations made during the lesson. Assessment of pupil work and progress is ongoing by the class teacher and informs future planning. Teachers use this information to inform planning for groups and individual pupils.

Summative assessments are made in order to provide further understanding of the stage a child is working at and to inform a more rounded judgement of their abilities. These are completed regularly throughout the year, in a range of formats. Summative assessments for each Programme of Study are completed, as pre-learning to assess prior knowledge and on completion of a teaching programme to assess children's attainment and identify any gaps to address. At the end of each term a summative stage assessment is completed. A termly, stage appropriate arithmetic assessment is also completed.

Teachers will record assessment information regularly on the established EazMag whole school system.

Tracking is used in order that children who are not making good progress over time can be targeted for support in one form or another. What that support will be and how intensive, depends upon the child's needs and it may be a simple strategy within whole class teaching that is needed. Where further support is deemed necessary, children can access interventions.

Display and Resources

In the classrooms there should be, either on display or easily accessible to children, stage appropriate resources, particularly concrete and pictorial apparatus to support children to grasp concepts.

Mathematical vocabulary and ways of working should be displayed so that children use this in the communication of their understanding. Where ever possible there should be maths work on display in classrooms and in other areas of the school in order to encourage a positive attitude and enthusiasm towards mathematics for all groups of children

Guidance for Teachers and TAs

Class teachers should access long term and medium term plans which will consist simply of mathematical areas and the progressions of objectives that they plan to teach during the term (based on their understanding of what children need to learn next). From this, short term plans should be completed including flipcharts of a high standard following the agreed school mastery approach. Maths should be taught every day in both KS1 and KS2 for 60 minutes per day.

Resources to assist with the planning, teaching and assessment of mathematics can be found on the school's shared computer network. Resources that can be found there include: calculation policy; problem solving resources (including word problems); pupil target sheets; a range of formal assessments linked to NC stage expectations, numicon, other resources and internet links. In addition, to assist with the teaching and assessing of mathematics school subscribes to Active Maths, MyMaths and Testbase.

There are a range of published support materials for teachers to use in the teaching of mathematics, in particular MathsNoProblem teaching books. However, teachers should use resources which best fits the success criteria - these might come from the published schemes but might come from elsewhere.

All children have an end of year target set based on previous outcomes.

Big Maths

We place great importance on children learning and becoming fluent in key mathematical skills, concepts and facts. This is key to build a secure foundation on which to build mastery knowledge. Each Key Stage completes a Big Maths session each week.

KS1 - Number facts and number bonds are paramount and children work on these to acquire a secure and quick accurate recall knowledge. Progression through the Key Stage 1 stages of the National Curriculum is monitored closely and forms part of each child's Number Bonds & Times Tables Record of Achievements.

KS2 - As children progress into Year 3 they complete a weekly Big Maths assessment focussing on key stage appropriate concepts. The results of these inform future teaching and learning and allow children to practise key age appropriate skills. It also informs teachers of any gaps in learning which need to be addressed and secured.

Tracking and Intervention:

At Windmill Hill Primary School we aim to provide children who are not making good progress, with extra support through pre and post learning sessions and interventions. Interventions in maths should be based on developing key number skills that are appropriate for the children involved. These can be located in the Special Educational Needs Resource Area.

Intervention provided to boost children's progression in maths is tightly planned, with success criteria set and assessments made frequently to ensure progress is being made. Whilst interventions could be carried out by Teaching Assistants, for example, what is being taught and how it is delivered is the class teacher's responsibility and communication is essential.

Children who grasp concepts rapidly are identified and are challenged by a range of rich and sophisticated problems to allow them to gain a depth in their understanding rather than be accelerated through new content.

We identify from tracking any gender issues that exist and plan initiatives that would address these as part of Pupil Progress Reviews where children's performance is evaluated on an individual basis with class teachers.

We also examine the progress of ability groups and those with English as an additional language, those entitled to the Pupil Premium and those with a Special Educational Need. Where data indicates a whole school issue, it will form part of the School Improvement Plan.

Monitoring:

Monitoring of children's progress begins with Pupil Performance Review meetings but continues with the subject leader evaluating further evidence to ensure children are making progress. This monitoring happens through examination of work in books, pupil interviews, analysis of assessment results and the assessments used, and through other means depending on what information needs to be gleaned.

Following monitoring activities feedback is given to staff about how they can strengthen their practice and CPD (professional development) opportunities built in where it would be deemed valuable. These might take the shape of inputs during staff meetings or by a variety of other means.

Where specific initiatives have been put in place through action planning for school development, these are monitored by the subject leader, SEN coordinator, Inclusion Manager and class teachers involved in order to evaluate their impact. These are then reported to SLT and termly Pupil Progress Reviews. This then informs future intervention planning.

Parents and Homework

We recognise that parents make a significant difference to children's progress in Mathematics and encourage this partnership. The homework policy, individual year group objective booklets and information and videos on the school website, outline how parents can support. Each child also has an individual log-in which allows them access to MyMaths, an online mathematical learning platform, where children can complete lessons and homework activities set by their teacher. Times table homework is also given to children in Year 2 and above.

Other policies and documents to be read alongside the Mathematics policy:

Whole School Calculation Policy

National Curriculum 2014

Development Matters

Homework Policy

Teaching and Learning Policy

Marking and Feedback Policy

Inclusion Policy

Number Bonds Record of Achievement

Times Table Record of Achievement

Mastery at Windmill Hill

Mathematics at Windmill Hill