

WARDEN HILL PRIMARY SCHOOL

Mathematics Policy

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Sub-Committee responsible	Curriculum
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1.0	June 1996	Original Issue
1.1	Feb 2002	Implementation of Numeracy Strategy
1.2	April 2009	Review in line with the Revised Framework

1. Vision Statement

“All at Warden Hill are working to create and maintain a safe and secure environment for children, with an atmosphere that fosters happiness and growing self-confidence. We aim to teach literacy and numeracy first and foremost, but in a way that will equip our children for the many challenges that face them now in the 21st century.” (School vision statement)

What is numeracy?

Numeracy is a proficiency which involves confidence and competence with numbers and measures. It requires an understanding of the number system, a repertoire of computational skills and an inclination and ability to solve number problems in a variety of contexts. Numeracy also demands practical understanding of the ways in which information is gathered by counting and measuring, and is presented in graphs, diagrams, charts and tables. Pupils should be confident enough to tackle mathematical problems without going immediately to teachers or friends for help. Pupils should:-

- have a sense of the size of a number and where it fits into the number system,
- know by heart number facts such as number bonds, multiplication tables, doubles and halves,
- use what they know by heart to figure out answers mentally,
- calculate accurately and efficiently, both mentally and with pencil and paper, drawing on a range of calculation strategies,
- recognise when it is appropriate to use a calculator and be able to do so effectively,
- make sense of number problems, including non-routine problems and recognise the operations needed to solve them,
- explain their methods and reasoning using correct mathematical terms,
- judge whether their answers are reasonable and have strategies for checking them where necessary,
- suggest suitable units for measuring and make sensible estimates of measurements,
- explain and make predictions from the numbers in graphs, diagrams, charts and tables.

Vision

At Warden Hill School we recognise the central importance of mathematics as a tool in everyone's life. It is used to provide the means by which we can convey thoughts and ideas. Information and concepts can be presented by the use of numbers, letters, drawings, charts and diagrams. By using examples and applying logic, generalised principles can be deduced. Mathematics can, therefore, be a useful tool to communicate information required in other subjects, in every day life and the world of work. Mathematics also has a fascination of its own for some people and gives pleasure to many children and adults. Consequently, the acquisition and development of mathematical skills is considered an essential part of the school curriculum and the subject is given high priority.

2. Aims

We have produced this statement on policy and practice in mathematics to ensure that:-

- each pupil develops as far as possible the knowledge, skills and understanding in mathematics which will be required in further study and adult life,
- an independent approach to learning is developed,
- pupils develop lively and enquiring minds and apply themselves to tasks, striving for excellence,
- the requirements of the Revised Primary Strategy for Numeracy and the Foundation Stage Curriculum are fully covered,
- approaches within the school are consistent and clear,
- the school policy on mathematics is available to parents and other interested parties.

Our intention is that children:-

- acquire mathematical skills and concepts,
- develop a positive attitude to learning, displaying low anxiety levels and are confident when using and applying their knowledge and skills,
- are given wide and varied opportunities to practise, apply and consolidate skills,
- develop the ability to talk about mathematics confidently, using the correct mathematical vocabulary,
- develop logical thinking,
- are able to use maths as a tool to solve problems in a real life context.

We also aim to engender a fascination with the subject and give all children the confidence to use their mathematical knowledge and understanding with fluency and accuracy.

The acquisition of mathematical skills enables each child to achieve these aims. Parental involvement with homework and other activities is encouraged as an important component of this achievement.

3. Provision

About twenty percent of teaching time will be devoted to the teaching of mathematics. The *Glos Maths Toolkit Blocks of Work* help to ensure that the necessary range of work is covered throughout the school at levels appropriate for all children (see Appendix 1 for end of year expectations).

Foundation Stage

The curriculum is guided by the 'Early Learning Goals' in the Foundation Stage Curriculum. Children engage in problem solving, reasoning and number practical activities daily. Many of the concepts are developed through stories and play.

Key Stage 1

The National Curriculum order for mathematics describes what must be taught in this key stage. Warden Hill pupils follow the Revised Primary Strategy for Mathematics (as mapped out by the toolkit). **Children engage in mathematical activities usually on four out of five days each week.**

In this key stage there is a strong emphasis on oral work, developing mathematical language, selecting and using materials and developing reasoning. Sorting, making comparisons and searching for patterns applies to work on number, shape and space and data handling.

Key Stage 2

The National Curriculum order for mathematics describes what must be taught in this key stage. Warden Hill pupils follow the Revised Primary Strategy for Mathematics (as mapped out by the toolkit). Children engage in mathematical activities daily. Developing mathematical language, reasoning and skills in applying mathematics applies to all areas of the subject. Again there is an emphasis on oral work and developing mental skills.

Homework

Where appropriate teachers set homework. This is usually in the form of a weekly worksheet from years 1 to 5. In year 6 the children receive homework on a daily basis. Homework is designed to consolidate work taught in school and parents are encouraged to get involved with their children's learning. Pupils are also encouraged to continually practise their mental/oral skills; in particular, times tables.

Each year the school also provides activities to encourage a fascination in mathematics as part of the curriculum. These activities have included a maths day, maths trails and visiting theatres.

The subject leadership team will be responsible for ensuring the curriculum requirements of the Mathematics Policy are fully implemented.

4. Subject Organisation

Pupil Grouping for Mathematics

Throughout the school pupils work in ability groups for mathematics and work is differentiated for these groups. In Key Stage 2, when there are two classes in a year group, the children are placed in two sets based on ability for all daily mathematics lessons. Teaching assistants support groups throughout the week.

Teaching and Learning

Lessons usually follow the National Numeracy Strategy format of an oral and mental starter, a main teaching activity and a plenary. The starter involves whole class work to rehearse, sharpen and develop mental and oral skills. The main teaching activity includes both teaching input and pupil activities with a balance between whole class, grouped, paired and individual work. In the plenary teachers work with the whole class to sort out misconceptions, identify progress, to summarise key facts and ideas, to make links to other work and to discuss next steps.

In maths lessons pupils engage in;

- the development of mental strategies,
- written methods,
- practical work,
- investigational work,

- problem solving, mathematical discussion,
- the consolidation of basic skills and number facts.

Calculation skills and written methods are developed from reception to year 6 following the framework's suggested progression. (See Appendix 2)

Planning

Long term and medium term planning is structured following guidance set out in the Renewed Framework for Mathematics and using The Gloucestershire Planning Toolkit.

The planning structure for each year is organised into five blocks (see Appendix 3). The structure is the same for each year group. A block is designed to cover 6 or 9 weeks' work. Each block is split into 3 units, which are taught in the autumn, spring and summer terms. Each block has incorporated into it objectives from the Using and Applying strand.

Short term or weekly plans for each unit use an agreed format and include objectives, mental/oral starters, differentiated main teaching activities and plenaries.

Recording of Work

From year 1 onwards children have a designated squared maths book. All maths work is completed in pencil. Children also use whiteboards in lessons depending on the activity and some work is completed on worksheets, which are then put into folders.

Resources

Everyday basic equipment for the delivery of the maths curriculum is kept in the classroom. There are two central maths resource areas: one for Foundation and Key Stage 1 and one for Key Stage 2. The resources in these areas are clearly labelled.

Teachers have the Abacus Evolve resources to share as a year group and there are various other books and schemes in the central resource areas. Teachers have other ICT resources on their laptops and the Primary Framework Website and Glos Maths Toolkit provide links to many other ICT based resources.

Springboard, Overcoming Barriers, Securing Levels and Wave 3 resources are available both as hard copies as electronic versions to support children, who are struggling to grasp concepts.

5. Cross-curricular Opportunities

Mathematics is mainly taught as a separate subject; however, the use of mathematics extends across much of the curriculum. Where appropriate, mathematical activities are planned in conjunction with other subjects and opportunities are sought to draw mathematics from a wide range of activities.

6. The Use of ICT

Throughout the school, teachers have and use interactive whiteboards with the children. There is a selection of computer software available for use on laptops and in the ICT suite. ICT also involves the use of calculators and audio-visual aids. These are used when it is the most effective and efficient way to meet the lesson's objectives.

7. Assessment and Target Setting

Teachers will use observation, formative and summative assessment to determine what children individually can do, in order to move them on to the next level. This knowledge will be used to inform planning.

Short term assessments are an informal part of every lesson. Their purposes are to:-

- check that children have grasped the main teaching points in a particular lesson or unit of work, whether they have any misunderstandings that need to be put right, and whether they are ready to move on to the next activity,
- check that children are remembering number facts and can use mental calculation strategies,
- give information to teachers that enables them to adjust day to day lesson plans and brief any support staff or adult helpers about which children to assist, and how to assist them.

The Foundation Stage assesses through the Foundation Stage Profile, which is on-going throughout the year. The data is passed up to year one and is used as a

benchmark. Year 1 to 6 teachers use assessments in line with the Glos maths APP (Assessing Pupil Progress) grids such "Stick on the Maths', 'Convince' and Discussion Mats'. Twice a year this will give an overall level for each child and the data is passed up to the next teacher.

In Key Stage 2 at the end of autumn and spring terms, teachers use a published assessment scheme in order to assess the children against national levels.

During the summer term years 3, 4 and 5 take the optional Sats tests, which alongside the other tests and teacher assessments, give the level the children are currently working at.

Year 2 and Year 6 children take the end of Key Stage tests. Year 2 use these tests to confirm their teacher assessments, which are reported to parents.

Year 6 have these tests marked externally and the results are reported to parents.

Following an annual class report, the mathematics co-ordinator produces a report, which evaluates the effectiveness of the teaching and learning throughout the school. From this an Action Plan for the following academic year is formulated. Assessment results throughout the year are used to inform class reports and the subject leader action plan.

SATs tests and Year 2 teacher assessments are analysed at the end of the year. Where common weaknesses are identified either across all key stages or key stage specific, targets are set and displayed in the classroom and an emphasis put on this aspect of their learning. Targets are set on a termly basis and at the end of each term the children are assessed to see whether these targets have been achieved.

At the end of the autumn and spring terms parents receive a report about children's development in core areas of their learning. At the end of the year parents receive a more detailed report of their children's progress with targets for the following year. (For further information see Assessment Policy.)

Marking

Work is marked on a regular basis. This includes self-marking of some work in KS2. Marking should primarily respond to the set objective and comments should take the children's learning forward. (For further information see Marking Policy.)

8. (a)Special Educational Needs and Gifted Children in Mathematics

Situations may arise in which individuals need to work at a level either above or below that of the rest of their peer group, or may need special assistance to accomplish particular tasks. This will become apparent through teachers' use of on-going observation and assessment.

Children, who are considered to be working well above the level of their peers, are included on the *Gifted and Talented register*, which is reviewed on a regular basis. Provision for these children is integrated into the whole class approach. Teachers use, where possible, open questions as a means to developing a pupil's understanding of a topic to greater depth and use is made of differentiated tasks and extension activities. This is to provide breadth and enrichment for the children.

Where children are thought to need additional help, teachers go through a referral procedure consistent with the *Code of Practice on the Identification and Assessment of Special Educational Needs*. Parents are informed of any such decision. These children are often supported in lessons by teaching assistants. (For further information see SEN Policy)

Children may also be asked to join booster or support programmes to support their specific needs in mathematics. These sessions often take place during assemblies. Parents are informed and consulted should this be the case.

8. (b)Equal Opportunities

Our aim as a staff is to ensure that all children irrespective of gender, ability, ethnic origin and social circumstances have equal access to the whole curriculum for mathematics and make the greatest possible progress. Consequently, we will make use of a suitable range of learning activities, teaching strategies, educational materials and technological aids to meet the needs of the individual learner. Every effort will be made to ensure that the methods and materials used are free from prejudice or bias against or in favour of any particular group.

9. The Role of the Subject Leader

The mathematics subject leader is responsible for co-ordinating mathematics throughout the school. This includes:-

- playing a leading role in reviewing and preparing the mathematics policy,
- maintaining good standards and ensuring progression and consistency of teaching,
- monitoring and evaluating policy and planning in mathematics,
- monitoring and evaluating pupils learning in mathematics and setting targets accordingly,
- producing an annual report,
- formulating an action plan and reviewing it,
- leading staff in the implementation of targets,
- auditing resources and purchasing new materials as required,
- an awareness of national developments in mathematics and attending courses where appropriate.

10. Parental Involvement

We see parents as important partners in the process of developing children's mathematical skills. We encourage involvement by:-

- holding an evening with guidance for parents of reception children on how to develop the necessary early mathematical skills,
- holding an evening for parents of KS2 pupils explaining the methods we use to teach calculation (see Appendix 2)
- inviting them into school to parents' evenings to discuss progress,
- providing termly booklets with targets and activities to do at home (examples in Appendix 4),
- setting homework, which include shared activities,
- issuing newsletters, which inform parents of work to be covered each term.

11. Conclusion

At Warden Hill we achieve above the national average results in mathematics and we are confident that our children are developing the skills they need for adult life. The children receive a varied mathematical curriculum during their years in order to promote mathematics as a fascinating subject as well as a necessary tool in life.