



## **MATHEMATICS POLICY**

### **Introduction**

This policy outlines what we are aiming to achieve in respect of pupils' mathematical education. It also describes our agreed approach to the planning, delivery and assessment of the mathematics' curriculum. The mathematics taught and the methods used reflect the recommendations outlined in the DfES guidance contained in the documents:

- Curriculum Guidance for the Foundation Stage
- Framework for Teaching Mathematics from Reception to Year 6
- Renewed Framework for Literacy and Mathematics
- Early Years Foundation Stage Guidance

It provides information and guidance for teachers, governors and other interested persons.

### **Aims**

Mathematics helps children to make sense of the world around them through developing their ability to calculate, to reason and to solve problems. It enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics.

### **At Wesley Methodist Primary School we aim to:**

- develop a positive attitude to maths as an interesting and attractive subject in which all children gain some success and pleasure;
- develop mathematical understanding through systematic direct teaching of appropriate learning objectives;
- encourage the effective use of maths as a tool in a wide range of activities within school and, subsequently, adult life;
- develop an ability in the children to express themselves fluently, to talk about the subject with assurance, using correct mathematical language and vocabulary (as detailed in DfES 'mathematical vocabulary');
- develop an appreciation of relationships within maths;

- develop ability to think clearly and logically with independence of thought and flexibility of mind;
- develop an appreciation of creative aspects of maths and awareness of its aesthetic appeal;
- develop mathematical skills and knowledge and quick recall of basic facts in line with NNS recommendations.

### **Teaching and Learning Style**

The school uses a variety of teaching styles to cater for the variety of learning styles of pupils in mathematics lessons. Our principle aim is to develop children's knowledge, skills and understanding in mathematics. We do this through a daily lesson that has a high proportion of whole-class and group-direct teaching. During these lessons we encourage children to ask as well as answer mathematical questions. They have the opportunity to use a wide range of resources such as numicon, number lines, number squares, digit cards and small apparatus to support their work. Children use ICT in mathematics lessons where it will enhance their learning, as in modelling ideas and methods. The school's use of the 'team' approach to planning ensures that Using and Applying mathematics is integrated into planning and teaching.

In all classes there are children of differing mathematical ability. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this through a range of strategies – in some lessons through differentiated group work, and in other lessons by organising the children to work in kagan groups or pairs on open-ended problems or games. We also do three extra 20 minute sessions a week in which we practice timestables and mental math's.

We use teaching assistants where possible to provide appropriate support to individuals or to groups of pupils. Teaching assistants within Key stage 2 are also trained to deliver 'catch up' numeracy to children who need further support. 'Catch up' numeracy occurs outside of the daily mathematics lesson. They also work with gifted and talented children and higher ability children to boost their learning.

### **Mathematics Curriculum Planning**

Mathematics is a core subject in the National Curriculum..

We carry out the curriculum planning in mathematics in line with the structures and recommendations outlined in the Renewed Framework for Mathematics. Our weekly plans list the specific steps for success for each lesson and give details of how the lessons are to be taught. The headteacher (mathematics subject leader) is responsible for monitoring the mathematics planning within our school.

### **Working walls**

Working walls are essential to children math's learning. The walls are updated weekly and include the calculation policy and children's work. The math's walls are always on a blue background

## **Problem solving**

Children experience problem solving at least once through the week.

Problem solving aims to enrich the mathematical experience of all learners.

Children are exposed to a variety of mathematical approaches at both Key Stage 1 and 2:

- Working Systematically
- Visualising and Explaining
- Conjecturing and Generalising
- Exploring and Justifying
- Reasoning and Convincing
- Applying and Consolidation
- Thinking Strategically

## **Assessment**

At Wesley Methodist Primary School we use ‘target tracker’ to follow children’s progress and inform our pupil progress meetings. We recognise that AfL lies at the heart of promoting learning and in raising standards of attainment. We further recognise that effective AfL depends crucially on actually using the information gained.

APP is the main assessment tool used to assess pupil progress within school. It encompasses: Making ongoing assessments and responding appropriately to pupils during ‘day-to-day’ teaching. These ‘immediate’ responses are mainly verbal and are not normally recorded; Using knowledge of pupils drawn from ongoing pupil tracking records and from the ‘prior learning’ section at the beginning of each unit of work within the Renewed Framework to guide our planning and teaching;

Adjusting planning and teaching within units in response to pupils’ performance;

Use of the ‘assessment for learning’ questions within the Renewed Framework to check learning against objectives at the end of each unit of work. If necessary future planning is adapted in response to assessment outcomes;

Identifying gaps in learning through using APP.

Although APP is the main assessment tool, the use of statutory and optional tests is still carried out at the end of each year to ‘back up’ teacher assessment. Analysis is done at both a quantitative and qualitative level. Information gained is used to set focused curricular targets (what to teach) and also to determine which strategies or methods are particularly effective in respect of specific areas of mathematics (the how and why).

At Whitehouse Primary School we are embracing ‘Assessing Pupil Progress’ in mathematics as an effective way of measuring pupil progress and attainment. We have a Leading Teacher for the LEA working on our staff, helping to support colleagues in school and across the LEA, to effectively implement this new initiative.

## **The Foundation Stage**

Work undertaken within the Foundation Stage is guided by the requirements and recommendations set out in the Early Years Foundation Stage document.

We give all the children ample opportunity to develop their understanding of mathematics. We aim to do this through varied activities that allow them to use, enjoy, explore, practice and talk confidently about mathematics.

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## Contribution in Mathematics to Teaching in Other Curriculum Areas

### **English**

Mathematics contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. This is recognised within the Renewed Framework for Mathematics where speaking and listening objectives are suggested for each block within each year group.

The information contained in the Renewed Framework is used to guide our planning, particularly in respect of speaking and listening.

### **Computing**

The effective use of computing can enhance the teaching and learning of mathematics when used appropriately. When considering its use, we take into account the following points: computing should enhance good mathematics teaching. It should be used in lessons only if it supports good practice in teaching mathematics;

Any decision about using computing in a particular lesson or sequence of lessons must be directly related to the teaching and learning objectives for those lessons;

computing should be used if the teacher and/or the children can achieve something more effectively with it than without it;

Useful suggestions as to integrating computing into units of work is given in the planning section of the Renewed Framework.

### **Science**

Almost every scientific investigation or experiment is likely to require one or more of the mathematical skills of classifying, counting, measuring, calculating, estimating and recording in tables and graphs. In science pupils will for example order numbers, including decimals, calculate simple means and percentages, use negative numbers when taking temperatures, decide whether it is more appropriate to use a line graph or bar chart, and plot, interpret and predict from graphs. There is useful information within the Renewed Framework in relation to 'cross-curricular' aspects of mathematics and science.

### **Art, Design and Technology**

Measurements are often needed in art and design and technology. Many patterns and constructions are based on spatial ideas and properties of shapes, including symmetry. Designs may need enlarging or reducing, introducing ideas of multiplication and ratio. When food is prepared a great deal of measurement occurs, including working out times and calculating cost; this may not be straightforward if only part of a packet of ingredients has been used.

## **History, Geography and Religious Education**

In history and geography children will collect data by counting and measuring and make use of measurements of many kinds. The study of maps includes the use of co-ordinates and ideas of angle, direction, position, scale and ratio. The pattern of the days of the week, the calendar and recurring annual festivals all have a mathematical basis. For older children historical ideas require understanding of the passage of time, which can be illustrated on a time line, similar to the number line that they already know.

## **Physical Education and Music**

Athletic activities require measurement of height, distance and time, while ideas of counting, time, symmetry, movement, position and direction are used extensively in music, dance, gymnastics and ball games.

## **Personal, Social and Health Education (PSHE) and Citizenship**

Mathematics contributes to the teaching of personal, social and health education, and citizenship. The work that children do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that children do within the classroom encourage them to work together and respect each other's views.

### **Teaching Mathematics to Children with Special Needs**

At Wesley Methodist Primary School we aim to provide a broad and balanced education to all pupils. Effective pupil tracking enables identification of pupils who may benefit from early 'intervention' at an appropriate level.

We also recognise, and aim to make provision for, pupils who have a particular ability in mathematics. We are developing our interventions for gifted and talented children.

## **Resources**

There is a range of resources to support the teaching of mathematics across the school. All classrooms have a wide range of appropriate small apparatus to support pupils and staff in the teaching and learning in maths. Touch screen TVs are available in all classrooms. Calculators and a range of audio visual aids are available as well as a range of ICT software. All classes have numicon, counters dice and other math's resources. We use busy ants math's as a basis for our curriculum.

## **Responses to Children's Work**

All children have steps to success at the top of their books. These are highlighted in yellow if targets are met. If there is an area for improvement this is highlighted in pink. The children have time in class to look and respond to the marking of the books. Children receive dojos for great maths work. We recognise the importance of responding to children's work, whether orally or in writing. We seek to encourage children by highlighting positive achievements. This could include praise for use of a viable method even if the end result were incorrect. Children are given opportunities, and actively encouraged, to explain their work to others and to display their work when it seems appropriate. They are encouraged to value and respect the work of others. Children are also encouraged to respond to any teacher comments made as well as identifying any targets they feel they have achieved.

## **Monitoring and Review**

Monitoring of the standards of children's work and of quality of teaching in mathematics is the responsibility of the Head Teacher (subject leader) and Governors. We do book scrutiny during which we ask children questions about their math's every 4 weeks.

We have regular training from Anthony Reddy and Dave Godfrey, who have had input into the action plan and the policy.

Our visual calculation policy is on the website and consistent throughout the school.

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