



**WHOBERLEY HALL**  
PRIMARY SCHOOL

# Maths Policy

**Implemented by school: Autumn 2024**

**Review by: Autumn 2027**

**Believing**  **Achieving**  **Learning for Life**

## 1. 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.

## 2. Aims

The National Curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and can recall and apply their knowledge rapidly and accurately to problems.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- 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.

### The principal focus of mathematics teaching in Key Stage 1.

- The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole number, counting and place value. This should involve working with numerals, mathematical vocabulary and the four operations, including the use of practical resources (for example, concrete objects and measuring tools), alongside pictorial resources (pictures of concrete objects, number lines, PPW models, jottings etc) and abstract resources (recording their work with numerals and mathematical symbols).
- Children at this point should be working on simple problems involving place value and the 4 operations where appropriate. Children should also begin using bar modelling to help solve problems.
- At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.
- By the end of Year 2, pupils should have automaticity with the number bonds to 20 and related facts. They should be precise in using and understanding place value. Teaching using the NCETM Mastering Number program will aid automaticity and understanding of the key facts.
- Pupils should read, spell and use mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

### **The principal focus of mathematics teaching Lower key stage 2**

- The principal focus of mathematics teaching in Lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including the number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large numbers. It is important that practical and pictorial resources are still utilised alongside abstract recordings to ensure a deeper understanding of a mathematical concept is achieved.
- At this stage, pupils should develop their ability to solve a range of problems, including those with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with some accuracy and make connections between measure and number. Children should be confident at using bar modelling to aid them in solving a range of problems.
- By the end of Year 4, most pupils should have automaticity of their multiplication facts up to and including the 12 times table, know the related division facts and be able to apply this knowledge. They should also show precision and fluency in their work.
- Pupils should read, spell and use mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

### **The principal focus of mathematics teaching Upper Key Stage 2**

- The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include both positive and negative integers, fractions, decimals and percentages.
- At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means of solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. Children should be confident at using bar modelling to solve more complex problems and aid their understanding of the problems.
- By the end of Year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.
- Pupils should read, spell and pronounce mathematical vocabulary correctly.

### 3. Teaching Mathematics

#### Organisation

- EYFS In Nursery the 3/4 Development Matters document is being used. ELG (Early Learning Goals) are being used for children in Reception. At this stage pupils experience mathematics daily. In Nursery maths is planned from using the early years staffroom curriculum linked to Development Matters. This a spiral curriculum that also includes continuous provision. It is a spiral curriculum because we have three nursery intakes a year. In Reception the curriculum is Mastering Number by the NCETM alongside Power Maths Shape, Space and Measure. Opportunities for mathematics should be developed through daily routines and all areas of learning focusing on the ELGs 11 Number and EGLs 12: Shape, Space and Measures.
- Mathematics should be taught for a total of at least  $5 \frac{1}{2}$  hours per week in Key Stage 1 and 2. This includes 5 Power Maths lessons and 3 to 4 Mastering Number fluency sessions (15/20minutes a session).
- The skills acquired in the mathematics lesson are applied across the curriculum.

#### Teaching strategies

- In order to provide the children with active and stimulating learning experiences, a variety of teaching and learning opportunities are adopted:
- Children should generally be paired in mixed ability pairs to aid understanding. A teacher may choose to have a focus table to assist certain groups of children, however this should try and be limited to independent work.
- At times children may work individually on a task, in pairs or in a small group, depending on the nature of the activity.
- Wherever possible practical 'real' activities are used to introduce concepts and reinforce learning objectives as context is very important in understanding a concept. This will be used alongside pictorial and abstract resources to expose the structure of the mathematics the children are learning and give them a deep understanding of the concept with the aim of 'doing the maths' abstractly where appropriate.
- Opportunities to transfer skills learnt, to real situations, are used whenever possible.
- Activities are planned to encourage the full and active participation of all pupils using the principal of lower floor, high ceiling.
- Teachers will be delivering the 'Power Maths' programme, and all children will be given the same independent work. However, staff must ensure that SEND children working significantly behind have appropriate provision whether this is in class or part of a small group TA lead session. Activities to stretch early graspers should be available, not activities that move them on.
- Teachers place a strong emphasis on correct use of mathematical language and answering in full sentences; this is supported by key vocabulary being displayed and the whole school oracy program being introduced.

- Teachers value pupils' oral contributions and create an ethos in which all children feel they can contribute.

## 5. Curriculum Planning

### Long Term Planning

We are using the 'Power Maths' programme and the long-term plan can be found at the front of every teacher guide and on the school SharePoint. For fluency we use Mastering Number, and this can be found on the school SharePoint.

### Medium Term Planning

This can be found at the front of the relevant teacher guide for each term (books A, B and C) as well as on the school SharePoint. For fluency we use Mastering Number, and this can be found on the school SharePoint.

### Short Term Planning

Each year group from Years 1 to 6 has 3 teacher guides (books A, B and C). Each guided contains enough lessons to last for a term. Staff should individualise each lesson using post it notes (this might include SEN, GD work, extra support etc) to personalise the lessons for their individual class. Where applicable staff will use Curriculum Prioritisation materials and accompanying Oak Academy lessons to personalise units of work for their class. I.e. CP and OA materials go into much greater detail for long division than PM so are used to teach this procedure. For fluency we use Mastering Number, and this can be found on the school SharePoint.

## 6. Teaching methods and approaches

In order to provide the children with active and stimulating learning experiences, a variety of teaching and learning opportunities are adopted:

- Children should generally be paired in mixed ability pairs to aid understanding. A teacher may choose to have a focus table to assist certain groups of children, however this should try and be limited to independent work.
- At times children may work individually on a task, in pairs or in a small group, depending on the nature of the activity.
- The school has agreed a presentation policy for mathematics, *including books and number formation*.
- A 'Routeway' through calculation has been agreed. The mental and written methods taught are exemplified in the attached 'Routeway through calculation' documentation.
- ICT is used where appropriate by teachers and pupils to support teaching and learning in Mathematics.
- 3 to 4 sessions a week using the Mastering Number Program will teach fluency across the school.
- Children will complete most of their work in their Power Maths workbooks.
- Other maths books will be provided for written arithmetic, SEND and work to stretch early graspers.

## **7. Assessment, recording and reporting**

Assessment takes place at three connected levels: short-term, medium-term and long-term. These assessments are used to inform teaching in a continuous cycle of planning, teaching and assessment.

### **Day-to-day assessments**

As part of the ongoing teaching and learning process, teachers will assess children's understanding, achievement and progress in mathematics. Assessment may be based upon observation, questioning, informal testing and the marking and evaluation of work. This will inform day to day teaching and learning and provide feedback to children. Learners will also be taught to assess and evaluate their own achievements by recognising successes, learning from their own mistakes and identifying areas for improvement. If children aren't secure in a concept, then pre teach will take place during assemblies to support children's understanding.

### **Half termly assessments**

Years 1 to 6 have half termly assessments that are completed after several units are completed. Staff should try and complete these once a half term, however it's important that all content is taught before an assessment is given. These are then marked and uploaded to the Power Maths website and Insight. The maths coordinator will then look at any areas of maths that the class need further support with and inform the relevant class teachers.

## **8. Intervention programmes**

KS1 and KS2 are expected complete pre-teach at least once a week during an assembly slot. This will be used to either go over a concept children need further support with or pre-teach some of the upcoming content to support children with their learning in the following week ahead.

EYFS should identify any children who haven't fully understood the concept/lesson and support them through 1 to 1 support or continuous provision. This guidance can be found in their planning.

## **9. Equal Opportunities**

All pupils will have equal opportunity to reach their full potential across the mathematics curriculum regardless of their race, gender, cultural background, ability or physical disability.

## **10. Inclusion**

The school's equal opportunities policy applies to the teaching of mathematics as to all other subjects.

## **11. Environment**

It is important that the classroom environment supports both the learning and teaching of mathematics.

The school aims to provide a mathematically stimulating environment:

- through the development and use of working walls to support learning and teaching in a lesson or series of lessons.
- through interactive displays that promote mathematical thinking and discussion
- through displays of pupils' work that celebrate achievement
- by providing a good range of resources for teacher and pupil use.

In every classroom, key maths vocabulary, STEM sentences and appropriate work from lessons will be displayed that matches the unit being taught.

## **12. Homework**

Reception, Year 1 and Year 2 have access to NumBots and are encouraged to complete it at home.

Years 2 to 6 have access to Times Table Rockstars and are set an amount to complete each week. Children who complete the amount are eligible to be the mathematics of the week and receive a TTRS trophy to keep on their desk for that week.

Year 6 have weekly homework using Learning by Questions. This interactive program allows teachers to set work based upon the needs of the class. Each 'lesson' contains fluency, reasoning and problem solving.

## **13. Management of Mathematics**

Role of the Maths Subject Leader:

- Ensure teachers are familiar with Power Maths and help them to understand and modify lessons where appropriate
- Lead by example in the way they teach in their own classroom
- Prepare, organise and lead professional development e.g. INSET, with the support of the Headteacher
- Work co-operatively with the SENDCO
- Observe colleagues in line with the annual/monitoring programme with a view to identifying the support they need
- Support the Leadership Team in the monitoring of planning and work scrutiny
- Attend INSET provided by external bodies.
- Produce an action plan for the development of Mathematics on an annual basis.
- Discuss regularly with the Headteacher and the Mathematics governor the progress of implementing the Strategy in the school.
- Keep an overview of the availability, suitability, organisation and use of resources.
- Identify priorities for expenditure and plan any budget allocation.