

# Newbold and Tredington C of E Primary School and Day Nursery

Creating a chance to SHINE every day

## Mathematics Policy

Date	Version	Amendments/Comments	Reviewer/s
January 2022	V1		SW
January 2025	V2	Rewritten in line with new curriculum	Csm

### **1. Subject Intent:**

The delivery of maths at Newbold and Tredington is based on research and the pedagogies that underpin the 'Five Big Ideas' developed by the NCETM in a Teaching for Mastery approach. These facilitate the delivery of the key aims of the 2014 National Curriculum: fluency, reasoning and problem solving.

#### **1.1 The National Curriculum for mathematics aims to ensure that pupils:**

- 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.
- 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 at 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 numbers, counting and place value. This should involve working with numerals, words and the 4 operations, including with practical resources [for example, concrete objects and measuring tools].
- 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 know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

- Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

### **The principle focus of mathematics in 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 4 operations, including 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 whole numbers.
- At this stage, pupils should develop their ability to solve a range of problems, including 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 accuracy and make connections between measure and number.
- By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.
- Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word-reading knowledge and their knowledge of spelling.

### **The principle focus of mathematics in 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 larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.
- 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 for 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.
- By the end of year 6, pupils should be fluent in written methods for all 4 operations, including long multiplication and division, and in working with fractions, decimals and percentages.
- Pupils should read, spell and pronounce mathematical vocabulary correctly.

## **2. How is Maths implemented at Newbold and Tredington?**

### **2.1 Organisation**

- We teach mathematics across our Early Years. Our mathematic development reflects the Education Programme for Mathematics in the new EYFS Statutory Framework, which is underpinned by Communication and Language. Progression has been planned through the curriculum using the NCETM Early Years areas: Counting and Cardinality, Composition,

Comparison, Shape and Space, Pattern and Measures, alongside the non-statutory guidance Development Matters. All children are encouraged to nurture a strong sense of number through deep exploration of the numbers 1-10, the patterns and relationships that link them and to develop their understanding through manipulation of objects that facilitate counting. As well as developing their spatial reasoning through shape, space and measures children are encouraged to develop a positive attitude towards mathematics through pattern spotting, talking to others about their findings and making connections between things they discover.

- Mathematics in Years 1-6 are taught on a rolling two-year programme, covering all objectives for all year groups across a two year period.
- Mathematics focused lessons are taught in 50 minute sessions, including up to 5 a week, in key Stages 1 and 2. There are also 5 Fast Fact sessions which take place for years 3, 4, 5 and 6 alongside Mastering Number sessions for years 1 and 2.

## 2.2 Teaching Strategies

SO that children have access to an engaging learning experience in maths, different teaching strategies are employed. The school follows a Teaching for Mastery approach, facilitated by Walkthru strategies designed inline with Rosenshine principles. Some of the strategies that teachers use in classrooms include:

- In our Early Years, mathematics will be seen in our continuous provision and enhancements to this, focus group activities, 1:1 and small group work and, in Reception daily Mastering Number sessions.
- Children being sat in mixed ability seating arrangements for the majority of the teaching time however small targeted groups may be used to support certain groups of children in their independent work.
- Built in individual thinking time to consider a question, before child-centred discussion.
- Sometimes children may work on tasks together as a class, in pairs or individually.
- Sessions are contextual to introduce a concept and engage the children. These contexts are built upon and explored using visual and abstract representations to expose the structure of the mathematics that the children are learning.
- Activities are planned to support all children; scaffolding those who need additional support while stretching those who have a secure conceptual understanding. Therefore all children are given the same independent work based around the Oak National Academy materials. Children with SEND needs are scaffolded where appropriate to ensure they can access the concept being learnt, however those who are working significantly behind their peers are provided separate curriculums in class or delivered through targeted interventions by support staff.
- Teachers plan opportunities for children to improve their oral skills by emphasising use of correct mathematical terminology and full sentences during verbal reasoning. Stem sentences around classroom support children's reasoning and exposure to mathematical language.

## 2.3 Curriculum Planning

### **Long Term Planning**

The school follows a two-year rolling programme of units taken from the NCETM Curriculum Prioritisation guidance. They have been organised into an appropriate two year sequence following support from local and national maths hubs. Years 3, 4, 5 and 6 are taught on a two-year sequence

however Years 1 and 2 are taught separately due to the different demands of each years' curriculum and so are therefore both following a one year programme. This long term plan also covers the Fast Fact progression for each class.

### **Medium Term Planning**

To ensure a consistent approach, teachers deliver the content from the NCETM Curriculum Prioritisation units through using matched resources from the Oak National Academy. They plot out the teaching of a concept using the NCETM Professional Development materials to help guide the progression of small steps, using the Oak materials as a resource to adapt. The medium term plans are submitted to the maths lead termly.

### **Short term planning**

Each unit in the Oak Academy resources has guidance and supporting materials to help teachers design each of their lessons. They are required to adapt and amend the teacher input materials and individualise the tasks so that each lesson is appropriate for the children they are teaching, using the principles of Teaching for Mastery. This may include incorporating more opportunities for oral discussion. Teachers take the Oak materials and adapt them to ensure that core representations are used; stem sentences are included to scaffold conceptual and procedural understanding; opportunities for oral discussion are included; deeper explorations of problems in context; adaptations for SEND and access to higher ceiling activities to deepen understanding.

Further SEND needs for those children working significantly below their age related expectations are addressed through delivery of appropriate Mastering Number sessions, as well as targeted support from other publications such as White Rose resources.

Fast Fact sessions in Years 1 and 2 are delivered through Mastering Number sessions or individual work using other number platforms such as Times Table Rockstars. Fast Fact sessions for other year groups are planned around the progression from the long term plan as well as the needs of the children through half termly assessments of the Ready to Progress criteria.

## **3. How is Maths assessed?**

### **3.1 Teacher assessment**

Teachers continually assess the children that they teach. As part of the teaching process, staff undertake day-to-day assessments during the maths sessions through observation, questioning, marking and feedback on work. This informs the children of their progress but also indicates to the teachers where further practise is needed. This feedback informs the progression of teaching the concept further. Within each maths session, children undertake an 'anchor task' to inform the teacher of prior knowledge as well as an 'exit quiz' either in the lesson or at a later date to help check understanding. Pre-teaching, where appropriate and viable, can take place to help children secure conceptual understanding.

At the end of each unit, children take an informal assessment based on the concepts covered in the unit. These assessments are formulated around the Ready to Progress criteria for each year group and match the Oak units taught. These informal assessments allow teachers to make a

judgement as to where the children are attaining each term. These judgements are uploaded to Insight where the maths lead will look at the data to identify any particular areas of weakness.

Children who do make sufficient progress are identified efficiently at pupil progress meetings with the teacher and SLT, where strategies as to how best support those children are discussed and implemented.

Longer term assessments are aimed towards the end of the school year along with statutory tests for Years 4 and 6. At the end of Reception, the level of development children are expected to have attained by the end of the EYFS is defined by the early learning goal (ELG) for mathematics. Assessments are also used to assess progress against school and national targets. These are used to create summaries of children's attainment and progress which are later shared with parents and carers.

#### **4. Role of the subject leader**

Monitoring of the standards of children's work and of the quality of teaching in mathematics is the responsibility of the mathematics subject leader. The work of the subject leader also involves supporting colleagues in the teaching and delivering of mathematics, being informed about current developments in the pedagogies, and providing a strategic lead and direction for the subject across the school. The mathematics subject leader gives the Headteacher and the designated Maths Governor a regular summary in which they evaluate the strengths and weaknesses in the subject and progress on the action plan.

##### **4.1 Professional Development in mathematics**

###### **External support**

The maths lead is actively involved with the local maths hub, Origin Maths Hub, and is receiving support (along with other staff in previous years) to continue the school's journey along implementing a Teaching for Mastery approach. Working as a Local Leader of Mathematics education (LLME), the maths lead has access to additional support from other LLME around the county and information disseminated from national organisations, such as wider Maths Hubs and NCETM training. New teaching staff have been given CPD from Origin Maths Hub to be able to effectively deliver the Mastering Number programme to continue the school's progress towards effective fluency delivery.

Support staff have also attended Specialist Knowledge for the Teaching of Mathematics programmes run by Origin, such as the SKTM for Teaching Assistants and a research-based workgroup for SEND Characteristics. As a school, the maths lead works closely with other schools in the Multi-Academy Trust who are on a similar Teaching for Mastery journey. They work to plan co-operative workshops to engage parents from across the MAT in supporting their children's mathematic learning.

###### **Internal support**

All staff undertake a yearly programme of CPD delivered by the maths lead which focuses on developing mathematical subject knowledge, as well as pedagogical knowledge tailored to meet

the needs of the School Improvement Plan. This may include delivery of information through staff meetings, peer-on-peer observations modelled by the maths lead and regular staff discussions on the approaches in each class.