

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

Creating a chance to SHINE every day

## Mathematics Policy

This policy was ratified: January 2022

And will be reviewed: January 2025

Signed by Headteacher: Samantha Welsby

Signed by Chair: Dave McWhirter

### 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 Debbie Morgan (2012, ATM) for the Mathematics Specialist Teacher Programme (MaST). These facilitate the delivery of the key aims of the 2014 National Curriculum: fluency, reasoning and problem solving.

**1.1** At Newbold and Tredington, our principal aim is to continually develop children's knowledge, skills and understanding by encouraging them to make links between mathematical concepts in order to reason and problem solve effectively. This is achieved by designing a curriculum around:

**Conceptual understanding** - to provide children with the building blocks for developing skills to support deeper reasoning.

What this means - children develop understanding of mathematical concepts through exploration in pattern, representation and proportionality.

**Fluency** - to give children the knowledge and skills necessary to apply to a range of contexts.

What this means - children can fluently use procedures and manipulate number knowledge efficiently.

**Reasoning** - to give children the strategies, methods and resilience to reason about problems involving multiple concepts.

What this means - children persevere to reason with problems that develop mathematical thinking within a variety of contexts. They are able to confidently and independently represent their thinking through explanation of mathematical concepts.

**Investigation** - to secure deeper conceptual understanding through investigative approaches to problem solving.

What this means - children are able to approach an investigation independently and with curiosity. Children explore **generality** through observations and are able to make further conjectures to extend an investigation using convincing arguments based on solid conceptual understanding.

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

### 2.1 Progressive planning

Curriculum planning is organised into three phases (long term, medium term and short term) using Pier2Peer assessments, supported by White Rose resources and current Government guidance to ensure effective progression through the programme of study.

- Each concept is planned to progress through from its early steps through to consolidation, providing flexibility for children to secure, deepen or investigate their conceptual understanding.
- Taught objectives are planned out to best utilise links between mathematical ideas as well as connect to other areas of the curriculum, making effective use of resources.
- Teachers use a variety of commercial resources however are encouraged to design tasks to best facilitate reasoning and conceptual development.
- Pier2Peer planning documents include the 'Ready2Progress' criteria from the 2020 Government guidance, to enable teachers to easily recognise and prioritise the essential building blocks alongside the supporting areas of mathematics.

### 2.2 Incorporate reasoning focused lesson structures

Within each lesson, teachers use the pedagogies that support the Five Big Ideas to structure delivery of the content:

- **Prompting thinking**
  - Children are provided a stimulus to discuss to **encourage observation** and begin to make connections between previous knowledge and new concepts.
- **Enabling learning**
  - Teacher input draws the children's attention to particular elements of the concept and **make links** to other concepts.
- **Providing opportunities**
  - Children are given the chance to manipulate and reason with similar ideas to see the **patterns or relationships through different representations**. Supportive and challenging questioning allow for all children to learn at their appropriate level.
- **Investigation**

- 'Low threshold, high ceiling' tasks are designed for children of all abilities to explore the concept more deeply and develop their mathematical thinking, discussion and **investigative curiosity**.

### 2.3 Fluency sessions using No Nonsense Number Facts

Included in planning where appropriate, children engage in short fluency sessions that are dedicated to improving mental agility and relationships within number knowledge aimed at their appropriate age group. These sessions are used in conjunction with lesson planning to aid children in making links between number knowledge and other areas of mathematics.

### 2.4 Weekly Key Number Challenges

Children have a focus on completing weekly mathematical challenges based around number facts, such as number bonds and multiplication tables, utilising technology that can also be accessed at home. These are aimed at individual children's ability with encouragement to make accelerated progress to be secure within their year group's expectations of number knowledge.

### 2.5 Early Years

We teach mathematics in our reception class. Our mathematic development reflects the Education Programme for Mathematics in the new EFYS Statutory Framework, which is underpinned by Communication and Language. 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. The curriculum is further supported by the Development Matters through the Early Years.

## 3. How is Maths assessed?

### 3.1 Teacher assessment

Teachers regularly use the assessment tools from the Pier2Peer documents, alongside government Ready to Progress statements to target gaps in conceptual knowledge as well as provide for further challenge where appropriate. Children who struggle to understand a concept have additional support in lessons which could include, but is not limited to: scaffolded tasks, pre-teaching activities, localised support from LSA, short interventions or other adaptations in class suitable for their needs.

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 Year 2, 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.

### **3.2 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.