WYKE PRIMARY SCHOOL

MATHEMATICS POLICY

Member of Staff responsible: Lena Rose

Date the policy was written: December 2024

Date to be reviewed: For review: December 2025

Statement of Intent for Mathematics

At Wyke, we aim for all children to enjoy maths and become confident mathematicians, making rich connections across mathematical ideas. We foster a positive "can do" attitude and promote the fact that "We are mathematicians and can do Maths!" We believe all children can achieve in Mathematics and teach for a secure and deep understanding of mathematical concepts through manageable steps. We use mistakes and misconceptions as an essential part of learning and provide challenge through rich and sophisticated problems. Our learners will develop a secure sense of number and be exposed to a wide range of strategies that will help them develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They will spend time becoming true masters of content, applying and being creative with new knowledge in a number of ways.

Aims/Objectives

At Wyke, we aim to:

- Promote a positive attitude to maths in all pupils
- Ensure that all pupils are engaged in and enjoying exploring mathematics
- Enable all pupils to find links between mathematics and other areas of the curriculum, including Science
- Ensure all pupils progress in mathematics and are challenged appropriately through an in depth understanding and through making connections within the mathematics
- Use a wide range of concrete, pictorial and abstract representations to develop all pupils' relational understanding of mathematics
- Ensure all pupils are confident using mathematical vocabulary when reasoning about mathematics
- Promote a growth mind set in all pupils, particularly when Problem Solving
- Ensure all pupils think of themselves as "Mathematicians"

Statutory National Curriculum Requirements

In the Foundation Stage (Reception) children are given opportunities to work towards the Early Learning Goal for Mathematics and through subjects will cover the following aspects of Mathematics:

- **Number and Place Value** - Counting, Identifying, Representing and Estimating Numbers, Reading and Writing Numbers, Comparing and Ordering Numbers, Understanding Place Value, Solving Problems
- **Addition and Subtraction** - Mental Calculations and Solving Problems
- **Measurement –** Describing, Measuring and Comparing and Solving Problems
- **Telling the Time –** Describing sequence of events
- **Properties of Shapes-** Recognise 2D and 3D Shapes and their Properties, Compare and Classify shapes
- **Position and Direction –** Position, Patterns and Direction and Movement
- **Statistics** – Record, Present and Interpret simple Data
- **Mathematical Vocabulary –** Learn and Use a wide range of vocabulary

Children in Key Stage 1 and 2 will be taught the Programme of Study from the National Curriculum 2014. Objectives are year group specific and cover Number, Measurement, Geometry and Statistics. The Curriculum aims to develop fluency, mathematical reasoning and problem solving by encouraging the children to achieve Mastery in the Maths skills specific to their year group.

Throughout Key Stage 1 and 2, The National Curriculum for Mathematics aims to ensure that all pupils:

- Become **fluent** in the fundamentals of mathematics, including through varied and frequent practise 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 to find solutions.

Teaching and Learning Styles

The National Curriculum for Mathematics 2014, EYFS Statutory Framework, alongside Development Matters and the Early Learning Goals (Number and Place Value, Shape, Space and Measure, Position and Direction and Statistics) provide the long-term planning for Mathematics taught in the school. Across all year groups, teachers use the White Rose Maths Hub schemes of Learning which provides a yearly overview and the medium-term planning for each year group. This scheme provides teachers with exemplification for maths objectives which are broken down into fluency, reasoning and problem solving, key aims of the National Curriculum.

At Wyke, we follow a "mastery" approach to Maths ensuring the pupils work together as a whole group on a particular objective and have plenty of time to build upon their reasoning and problem-solving skills. In Early Years (Reception) and Year 1, Maths and "Mastering number" sessions are taught over 4 days and children will have opportunities to develop their mathematical skills on a daily basis in both adult-led and child-initiated activities. Maths skills are developed across the curriculum, related to our Curious City enquiries when it is appropriate. From the Spring term of Year 1 (depending on the cohort), Mathematics is taught for at least one hour per day (5 hours per week) together with a 15-minute discrete session. The aim of this session is to promote fluency of Arithmetic by engaging children in one or more of the following activities: Times Tables Rockstars, Verbal mental maths, Flashback 4, Fluent in 5 or the teaching of Times tables. These activities are either recorded on whiteboards or in the EMA/Arithmetic books. Children self-mark in these books. Provision is made for children who require extra support through targeted support, intervention programmes and differentiated class teaching. Rapid graspers are not accelerated through concepts, instead they are encouraged to work through challenge questions from a variety of resources including White Rose, I see Reasoning, NRich and the NCETM materials.

Assessment

Our main assessment programme which is used throughout the school, is "Insight tracking". This is updated each term based on children's progression towards the learning objectives for their year group. Children are judged as being Greater Depth, Approaching Greater depth, Expected, Working towards or Below. This allows teachers to see if each child is on track to make expected progress and to corroborate teacher assessments. These judgements are informed by the White Rose end of block and/ or end of term assessments and KS2 SATs assessment papers in Year 6. Pupils in Key stage 1 and 2 will undergo summative assessment once each long term (December, April and July (with the exception of Year 6 who will only undergo assessments in December and April))

Pupil progress meetings are held once each long term with the Senior Leadership Team to discuss any children of concern or to put in place additional support or intervention.

Organisation

All mathematics lessons follow the same structure:

- A starter activity to promote the fluency of arithmetic
- New learning introduced using the Mastery approach (see below)
- Plenary

Lessons are planned and delivered using a mastery approach. In some or all lessons, teachers will use a CPA approach (Concrete, Pictorial, Abstract).

Concrete is the "doing" stage, using concrete objects to model problems. The CPA approach brings concepts to life by allowing the children to handle "physical objects" themselves. Every new abstract concept is learnt first with a "concrete" or physical experience.

Pictorial is the "seeing" stage, using representations of the objects to model problems. This stage encourages pupils to make a mental connection between the physical object and abstract levels of understanding by drawing or looking at pictures, circles, diagrams or models which represent the objects in the problem.

Abstract is the "symbolic" stage, where pupils are able to use abstract symbols to model problems.

Within each session, children will be exposed to fluency, reasoning and problem-solving activities. **Fluency** includes: conceptual understanding, accuracy, rapid recall, retention and practice. The key to fluency is deep knowledge and understanding and making connections at the right time.

Verbal reasoning demonstrates that pupils understand the mathematics. Talk is an integral part of mastery as it encourages students to reason, justify and explain their thinking. Mastery approaches use a carefully sequenced, structured approach to introduce and reinforce mathematical vocabulary. In all classes, children are encouraged to 'talk their Maths' to help develop their mathematical vocabulary and present their mathematical justification, argument or proof. The children are encouraged to engage in discussion when they explain their methods and strategies to the class or their peers. Through the use of stem sentences, support and modelling, children are assisted in making their thinking clear to themselves as well as others. They are encouraged to use the correct mathematical terminology and to express their mathematical reasoning through complete sentences which deepens their understanding. Staff support the children in using the correct mathematical vocabulary through modelling this themselves. Mathematical vocabulary for the topic is displayed on the working wall. This is key to building mathematical language and reasoning skills and gives pupils the confidence to communicate their ideas clearly, before writing them down.

Mathematical **problem solving** is also at the heart of our mastery approach at Wyke. Pupils are encouraged to identify, understand and apply relevant mathematical principles and make connections between different ideas. This builds the skills needed to tackle new problems, rather than simply repeating routines without a secure understanding. Alongside this, pupils are supported in developing a "growth mindset" which is key to enable them to approach these problems.

Role of the Subject Leader

The subject leader is responsible for improving the standards of teaching and learning in Mathematics through:

- Monitoring and evaluating Mathematics: Pupil progress, marking and planning, curriculum coverage, provision and the quality of the learning environment.
- Taking the lead in policy development
- Supporting colleagues in their CPD
- Purchasing and organising resources
- Keeping up to date with ongoing Mathematics developments

Appendices:

- National Curriculum Programmes of Study Key Stages 1 and 2
- White Rose Calculation Policy
- NCETM Calculation guidance