With God's help, we do all we can to be the best we can be.

VISION
Our children will receive quality first TEACHING in a LOVING Christian environment where everyone is RESPECTED and VALUED as a unique child of GOD.

Maths & Calculation Policy

Date	July 2024
Review	Autumn 2027
Chair of Governors	Mr A Stickland
Head teacher	Mrs Tracy Hallows
Subject Leader	Mr Craig Latham

Wheatley Lane Methodist VA Primary School

We aim:

To provide caring, quality education in a Christian environment which is happy and secure.

To develop in our pupils a sympathetic understanding of the Christian faith yet teaching understanding of, and respect for, other world faiths, beliefs and cultures.

To develop the full potential in each child with equality of opportunity.

To encourage independent learning through a broad and balanced curriculum.

To develop a sense of self-respect and consideration for others.

To place the children and their needs at the heart of our decisions.

The school's ethos is clearly based on its Christian foundation and we regard our school as a caring extended family. The best ambassadors for our school are parents and children, past and present, and we invite you to seek their views.

NB: This document is at the front of all our School Policies.

Wheatley Lane Methodist Primary School

Mathematics Policy 2024-2026

Mr C. Latham
Maths Subject Leader
July 24 (*review July 26*)

Introduction

The National Curriculum 2014 describes what must be taught in each key stage.

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 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.

This policy outlines the teaching, organisation and management of the mathematics taught and learnt at Wheatley Lane Methodist Primary School.
The policy has been drawn up as a result of staff discussion and has the agreement of the Governing Body. The implementation of this policy is the responsibility of all the teaching staff.

Our vision for Mathematics

• To promote a positive attitude towards mathematics in all pupils • To ensure all pupils are engaged in and are enjoying exploring Mathematics • To enable all pupils to find links between mathematics and other areas of the curriculum, including Science • To ensure all pupils progress in mathematics and are challenged appropriately through an in depth understanding • To use a wide range of concrete, pictorial and abstract representations to develop all pupils' relational understanding of mathematics • To ensure all pupils are confident using mathematical vocabulary when reasoning about mathematics • To promote a growth mind set in all pupils, particularly when Problem Solving

Teaching Mathematics

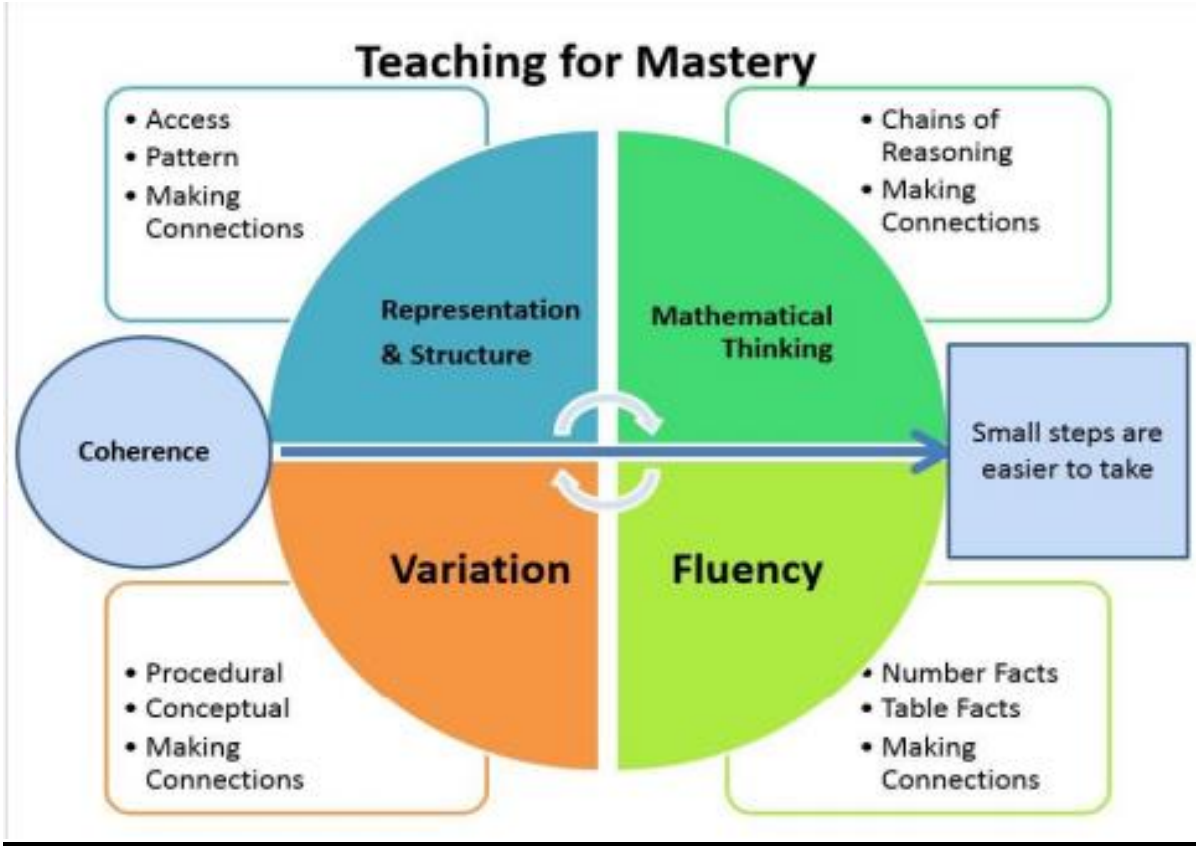
Teaching and Learning - **A 'Mastery' Approach**
The teaching and learning of mathematics at Wheatley Lane should include aspects of the following Mastery approach strategies in every lesson and/or over a series of lessons:

Concrete, pictorial, abstract (CPA) is a highly effective approach to teaching that develops a deep understanding of maths.

CONCRETE is the "doing" stage, using concrete objects to model problems. Instead of the traditional method of mathematics teaching, where a teacher demonstrates how to solve a problem, the CPA approach brings concepts to life by allowing pupils to experience and handle physical objects themselves. Every new abstract concept is learned first with a "concrete" or physical experience. For example, if a problem is about adding up four baskets of fruit, the pupils might first handle actual fruit before progressing to handling counters or cubes which are used to represent the fruit.

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. Building or drawing a model makes it easier for pupils to grasp concepts they traditionally find more difficult, such as fractions, as it helps them visualise the problem and make it more accessible.

ABSTRACT is the "symbolic" stage, where pupils are able to use abstract symbols to model problems (Hauser). Only once a child has demonstrated that they have a solid understanding of the "concrete" and "pictorial" representations of the problem, can the teacher introduce the more "abstract" concept, such as mathematical symbols. Pupils are introduced to the concept at a symbolic level, using only numbers, notation, and mathematical symbols, for example +, –, x, / to indicate addition, subtraction, multiplication, or division.



What is Fluency?
Fluency comes from deep knowledge and practice. This is the first stage of pupils' understanding. Fluency includes:
Conceptual understanding, accuracy, rapid recall, retention and practice

Accuracy – Pupils carefully completing calculations with no or few careless errors.

Pace – Pupils are able to quickly recall the appropriate strategy to solve the calculation and progress through a number of questions at an age appropriate pace.

Retention – Pupils will be able to retain their knowledge and understanding on a separate occasion to when the concept was first introduced. The key to fluency is deep knowledge and practice and making connections at the right time for a child.

What is Reasoning?
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. We might, for example, get young learners to voice their thought processes. Older students could take part in class debates, giving them the space to challenge their peers using logical reasoning.

Mathematical Talk

A mastery classroom should never be a quiet classroom. The way pupils speak and write about mathematics transforms their learning. Mastery approaches use a carefully sequenced, structured approach to introduce and reinforce mathematical vocabulary. To encourage talk in mathematics, teachers may introduce concepts by including sentence structures (stem sentences). Pupils should be able to say not just what the answer is, but how they know it's right. This is key to building mathematical language and reasoning skills. This gives pupils the confidence to communicate their ideas clearly, before writing them down.

Example Stem Sentences:
The denominator is 5 because the whole has been divided into 5 equal parts.
The numerator is 3 because 3 equal parts have been shaded/circled.

Teachers then maintain a high expectation upon pupils to repeat and use the correct mathematical vocabulary to explain their understanding verbally and in their reflection comments. By also displaying the vocabulary during the lesson, pupils will be able to use this independently.

When questioning and encouraging mathematical talk, teachers should provide regular, purposeful opportunities.

For example: -
Show me how to complete the calculation
Teach your friend how to complete the calculation
How do you know which operation to use?
Why have you chosen this method?
How else can you represent this number?
What have you learnt today?
True or False
Odd one out
Sometimes, always, Never

What is Problem Solving?
Mathematical problem solving is at the heart of the Mastery Approach. 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. Mathematical concepts are explored in a variety of representations and problem-solving contexts to give pupils a richer and deeper learning experience. Pupils combine different concepts to solve complex problems, and apply knowledge to real-life situations. Through problem solving, pupils are required to select their mathematical knowledge and apply this to a new concept.

Problem solving is more than just word problems but the RUCSAC approach can be applied to this style of question:
1) Read / look at the problem

2) Understand the problem by underlining or discussing: What is the problem about?
3) Choose – Choose the operation required, the number facts or the approach.
4) Solve – Solve the problem by completing jottings on the page
5) Answer – complete the answer to the problem
6) Check – have I correctly answered the given problem or is there another step?

Teaching Time
To provide adequate time for developing numeracy skills, each class teacher provides a daily mathematics lesson. This may vary in length but will usually last for 50 to 60 minutes. Occasionally teachers will have 'maths mornings' where in-depth assessment and intervention will take place. Links are also to be made to mathematics within other subjects so pupils can develop their maths skills in various contexts.

Class Organisation
A range of styles of organisation is used. Approaches are chosen to suit the aims of particular lessons and to meet the needs of individual children. The styles of organisation include whole class, group and individual activities. There is a focus on direct teaching throughout lessons which involves a balance between different elements including teacher demonstration, explanation, questioning, and listening to, evaluating and discussing pupils' responses. Mathematics is taught as a discrete subject to establish a common pattern and routines that pupils can follow and to maximise time for teaching.

Planning
At Wheatley Lane, teachers will follow the White Rose block planning to map out each year's coverage. This provides the yearly overview and Medium Term planning for each year group. They will print off each block plan and annotate to meet the needs of their cohort. They will not only use the White Rose resources to adhere to the mastery approach but will also utilise other resources such as NCETM 'Ready to Progress' and the DFE 'Mathematics Guidance'. Also Nrich, Twinkl etc.

Calculation Policy
As part of our commitment to adopting a mastery approach, we will, this year, trial the White Rose calculations policy for addition, subtraction, multiplication and division as it ties in with the coverage in the White Rose blocks of work. We will review this next July.

Assessment
Assessment should be regular and used to inform planning and to make the Teacher Assessment judgements at the end of each term.
Formative Assessment – Completed regularly to inform planning – Questioning, Written Work and Discussion.
Summative Assessment - Each half-term: White Rose Assessments (Arithmetic and Reasoning and Problem Solving Paper) Each half-term: Practice SATs Papers (Years

2 and 6). Data from these assessments will be tracked through pupil progress meetings.
The White Rose Assessment results to be recorded each half-term. ♣ There are no official grade boundaries for the White Rose Assessments. However, in line with the KS1 and KS2 SATs, the following is a guideline: ♣ KS1 – Year 1 - a consistent score of approximately 60% (15/25) would indicate 'Expected' and 85% (21/25) would indicate 'Greater Depth'. ♣ Year 2 - - a consistent score of approximately 60% (21/35) would indicate 'Expected' and 85% (30/35) would indicate 'Greater Depth'. ♣ KS2 - a consistent score of approximately 55% (28/50) would indicate 'Expected' and 86% (43/50) would indicate 'Greater Depth'. These tests should be used to inform teacher assessment.

Out-of-class work and homework
The daily mathematics lessons provide opportunities for children to practise and consolidate their skills and knowledge, to develop and extend their techniques and strategies, and to prepare for their future learning. These are consolidated through out-of-class activities or homework.

Links between mathematics and other subjects
Mathematics links to many subjects within the primary curriculum and opportunities are given to draw mathematical experiences from a wide range of activities. This allows children to begin to use and apply mathematics in various contexts.

How we cater for pupils who are more able
We endeavour at all times to set work that is challenging, motivating and encourages pupils to talk about what they have been doing.
Wherever possible, more confident pupils are taught within their own group but stretched through individualised work and extra challenges where applicable. When working with the whole class, teachers will direct specific challenging questions towards the more confident children to maintain their engagement.

How we cater for pupils in general
The daily mathematics lesson is appropriate for all pupils. Teachers will involve all pupils through differentiation.

Pupils with special educational needs and individual education plans
Teachers aim to include all pupils fully in their daily mathematics lessons. All children benefit from the emphasis on oral and mental work and participating in watching and listening to other children demonstrating and explaining their methods. However, a pupil whose difficulties are severe or complex may need to be supported with an individual programme in the main part of the lesson.

Resources
White Rose, NCETM, Nrich and any other resources the teachers deems useful.
A range of mathematical equipment and apparatus is available throughout the school. Apparatus that is used regularly can be stored in the individual classrooms for the duration of that use. Mathematical equipment in general is labelled in the maths cupboard in the hall. Our resources are regularly audited and are replaced or increased as necessary.

Information and Communication Technology
ICT is used in many ways to support teaching and enhance children's learning. ICT involves the computer, calculators and audio-visual aids. They will, however, only be used in a daily mathematics lesson when it is the most efficient and effective way of meeting the lesson objectives.
An Interactive Whiteboard is available to each class. These are utilised in many ways such as: for teachers to model strategies; and for children to participate in interactive learning programmes. The pupils also have access to the ICT suite.

Management of Mathematics

Role of the Class Teacher

- To ensure progression in the acquisition of mathematical skills with due regard to the National Curriculum for Maths 2014.
- To develop and update skills, knowledge and understanding of maths.
- To identify inset needs in maths and take advantage of training opportunities.

- To keep appropriate on-going records.
- To plan effectively for maths, liaising with manager when necessary.
- To inform parents of pupils' progress, achievements and attainment

Role of the Subject Leader

- Ensure teachers are familiar with the Framework and help them to plan lessons
- Lead by example in the way they teach in their own classroom
- Prepare, organise and lead INSET if applicable, with the support of the Headteacher
- Observe colleagues from time to time with a view to identifying any support they may want or need
- Attend INSET provided by LEA numeracy consultants
- Inform parents
- Discuss regularly with the headteacher, and the numeracy governor, the progress of implementing the Framework in the school
- Analyse and monitor data about pupil progress
- Monitor teaching & learning through lesson observations, monitoring of planning and book scrutiny

Role of the Headteacher

- Lead, manage and monitor the implementation of the Framework including teaching plans and the quality of teaching in classrooms.
- With the numeracy governor, keep the governing body informed about the progress of the Framework
- Ensure that mathematics remains a high profile in the school's development work
- Deploy support staff to maximise support for the Framework

Role of the Parents – *At Wheatley Lane, we encourage parents to be involved by:*

- Inviting them into school twice yearly to discuss the progress of their child.
- Inviting parents to curriculum evenings and/or circulating information via half-termly newsletters when significant changes have been/are made to the maths curriculum.
- Sending home information regarding best practice in supporting their children with SATs.
- Holding workshops where relevant for parents focusing on areas of maths.

Role of Governors

- Be well-informed through the leadership of the head teacher and Maths subject leader.
- Support the staff in implementing the school's policy for maths.
- Monitor & review progress in maths.
- Ensure funds are available for training.

- Ensure that parents are kept informed about recent developments in maths teaching and current best practice.

Pupils should

- Have a sense of the size of a number and where it fits into the number system.
- Know by heart number facts such as number bonds, multiplication tables, doubles & halves.
- Use what they know by heart to work out numbers mentally.
- Calculate accurately and effectively, both mentally and in writing and paper, drawing on a range of calculation strategies.
- Recognise when it is appropriate to use a calculator and be able to do so effectively.
- Make sense of number problems, including non-routine problems, and recognise the operations needed to solve them.
- Explain their methods and reasoning using correct maths terms.
- Judge whether their answers are reasonable and have strategies for checking them where necessary.
- Suggest suitable units for measuring and make sensible estimates of measurements.
- Explain and make predictions from the numbers in graphs, diagrams, charts & tables.
- Develop spatial awareness and an understanding of the properties of 2D and 3D shapes.

Evaluation

The success of the Mathematics curriculum is monitored continuously through informal discussions between staff. The Maths Subject Leader monitors pupils each term and provides feedback to colleagues and the Headteacher.

Full advantage is taken of in-service training opportunities provided by the LEA and other local institutions.

To be revised:

Craig Latham
Mathematics Subject Leader
July 2026