

Aspiring to inspire others towards excellence, developing as individuals together in a distinctively Christian environment.

1 Corinthians, 12:14 "For the body is not one member, but many".



Policy for Mathematics

Our mission as a church school is to be – loving, welcoming and succeeding with faith, family and friendship at the centre of all that we do. The key Christian values that are the core of our school life are forgiveness, creation, koinonia, reverence, service, wisdom, trust and endurance.

Mathematics teaches children how to make sense of the world around them through developing their ability to use number, calculate, reason and solve problems. It helps children to understand relationships and patterns in both number and space in their everyday lives. The Mathematics curriculum should be bold, provide breadth and balance and be relevant and differentiated to suit the needs of all children in the modern world. It should be flexible, motivating all pupils, thus encouraging success at all levels.

At Little Waltham our aim is to achieve the following as outlined in the National Curriculum:

- Become fluent in the fundamentals of Mathematics through varied and frequent practice with complexity increasing over time.
- Develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically; follow a line of enquiry, conjecture relationships and generalisations.
- Develop an argument, justification and proof by using mathematical language.
- Problem solve by applying knowledge to a variety of routine and non-routine problems. Breaking down problems into simpler steps and persevering in answering.
- Develop confident, competent mathematicians who are able to apply mathematical knowledge, concepts and skills
- Develop skills of resilience and perseverance with an ability to solve problems, to reason, to think logically and to work systematically and accurately
- Develop an understanding of Mathematics through a process of enquiry and investigation, providing a challenging and engaging curriculum that stretches the children's knowledge and allows them to take risks
- Encourage children to use `maths specific` vocabulary to reason and explain
- Develop positive attitudes towards Mathematics and promote a love of learning
- Promote confident communication of Mathematics where pupils ask and answer questions, openly share work and learn from mistakes
- An ability to use and apply Mathematics across the curriculum and in real life
- Encourage a positive mindset- `You 'can't do it **yet**' when finding something tricky

The National Curriculum outlines the study programme for children in Key Stage 1 and Key Stage 2 so that Mathematics is taught progressively, building upon skills from the prior year group. The curriculum is designed so that the majority of children will move through the programme of study at broadly the same pace.

At Little Waltham we aim to teach Mathematics using this mastery approach and interlinking the different part of mastery. Lessons are broken down into small connected steps that gradually unfold the concept, providing access for all children and leading to a generalisation of the concept and the ability to apply the concept to a range of contexts.

Planning and learning

In EYFS at Little Waltham Primary CE VA School we aim to teach our children to become confident in their development of number sense and put emphasis on mastery of key early concepts. In reception the children follow the Mastering Number Programme which aims to secure firm foundations in the development of good number sense. We also use story books to explore and reinforce mathematical concepts.

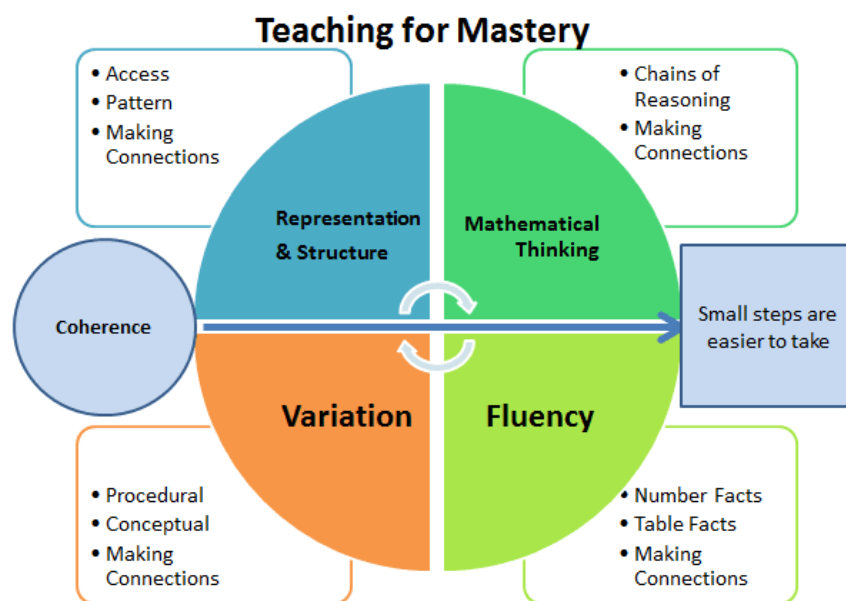
KS1 and KS2 teachers follow the White Rose Hub Mathematics scheme. Maths No Problem text books are also used to supplement and support the delivery of Mathematics teaching. The White Rose Hub Mathematics scheme has full coverage of the National Curriculum 2014 objectives for each year group. The No Problem Mathematics textbooks are arranged in chapters and over the course of the academic year, all units of the National Curriculum 2014 are covered.

The short term planning is completed weekly, listing the specific learning objectives that are to be covered in each year group class for each lesson that week. Medium term planning is to be completed by the end of the previous term and long term planning is completed by the subject leader before the academic year begins.

Each pupil in KS1 and KS2 will practice and develop their arithmetic skills as part of their daily early morning work.

Approach

At Little Waltham we are developing a Mastery approach which enables pupils to acquire a deep, long-term, secure and adaptable understanding of the subject. The phrase 'teaching for mastery' describes the elements of classroom practice and school organisation that combine to give pupils the best chances of mastering maths. Achieving mastery means acquiring a solid enough understanding of the Mathematics that's been taught to enable pupils to move on to more advanced material.

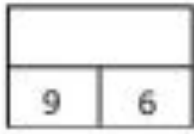


(NCETM <https://www.ncetm.org.uk/resources/49450>)

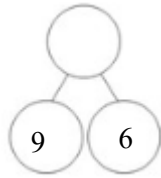
Teaching for Mastery is underpinned by four areas, these include:

- Representation and Structure
- Mathematical Thinking
- Variation
- Fluency

Representation and Structure focuses on how concepts in Mathematics are presented in different ways and forms for example when adding 2 numbers together it could be presented in many different ways:



Bar Model Representation



Part-Part Whole Model Representation

$$9 + 6 = \underline{\quad}$$

Number Sentence Representation

Nines ones add 6 ones is equal to

Place Value Representation

At Little Waltham we believe that it is important to expose children to many different representations and structures. This will enable a child to demonstrate mastery in a particular area of Mathematics if they are able to apply this within a range of different situations.

Mathematical Thinking requires children to be able to work through problems systematically rather than through `trial and error`. Children should be able to look for patterns and relationships and make connections. Children are able to demonstrate their mathematical thinking by explaining their methods and thought process when solving a mathematical problem.

Fluency is split into two areas:

- Procedural fluency
- Conceptual fluency

Procedural fluency is the ability to apply procedures accurately, efficiently, and flexibly; to transfer procedures to different problems and contexts; to build or modify procedures from other procedures; and to recognise when one strategy or procedure is more appropriate to apply than another.

Conceptual understanding is knowing the procedural steps to solving a problem and understanding why those algorithms and approaches work. This level of understanding has students reaching higher depths of knowledge because they are making connections from one skill to another.

Fluency relies on the quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of Mathematics.

Variation is also split into two areas like fluency:

- **Procedural variation**
- **Conceptual variation**

Procedural variation – This is a deliberate change in the type of examples used and questions set, to draw attention to certain features.

Conceptual variation – When a concept is presented in different ways, to show what a concept is, in all of its different forms

Recording Work

From an early age, children will be encouraged to set their work out neatly using pencil only and recording one digit per square and using a ruler to draw lines. Methods of working should always be shown so that the work can easily be discussed with the teacher. Children are encouraged to make jottings during working out and use the pictorial approach during Mathematics sessions. When worksheets are used, these should be neatly trimmed and stuck in.

Teaching Strategies and Resources

We have a wide variety of good quality equipment and resources, both tangible and ICT based, to support our learning and teaching.

These resources are used by our teachers and children in a number of ways including:

- Demonstrating or modelling an idea, an operation or method of calculation, e.g.: a number line; place value cards; dienes; money or coins; measuring equipment for capacity, mass and length; bead strings; the interactive whiteboards and related software; 3D shapes and/or nets; Numicon and related resources and software, multilink cubes; clocks; protractors; calculators; dice; number and fractions' fans; individual whiteboards and pens.
- Standard resources, such as number lines, multi-link cubes, dienes, hundred squares, shapes, etc. are located within individual classrooms.
- Resources within individual classes are accessible to all pupils who should be encouraged to be responsible for their use.
- Further resources (often larger items shared by the whole school) are located in the Mathematics cupboard.
 - A range of Mathematics related software is also available and this is accessible through the school server and available to children at home eg. MyMaths.
- Teachers are encouraged to use the school playgrounds as an outdoor classroom when possible, for example, when teaching length, area or perimeter.
- Each child in Years 1 to 6 has access to the subscription only MyMaths website, which they can access at home or at school to support their learning in Mathematics. KS2 pupils have also access to Times Tables Rock Stars to support development of times tables skills. The website follows and supports the National Curriculum 2014; learning is set by class teachers.

Learning Support and Differentiation

We aim to include all pupils fully in the mathematics lesson. All children benefit from oral and mental work and participating in watching and listening other children demonstrating and explaining their methods. However a pupil whose difficulties are severe or complex may need to be supported with an individualised programme either in the main part of the lesson, or outside of the lesson, decided by the method that will enable the child to make most progress.

The more able child will be given activities to extend and stretch their intellect, with a special focus on understanding their learning at greater depth.

Assessment

Assessment for learning is used throughout the lesson in order to address misconceptions and inform future planning. Pupils are formally assessed at the end of each term using White Rose Assessments/NFER assessments.

Equal Opportunities and Inclusion

All pupils will be provided with opportunities to use and develop their mathematical skills in contexts, which are appropriate to their current needs and experience.

Homework

Mathematics homework is set for children in Years 1-6 each week. Homework provides opportunities for children to: practise and consolidate their skills and knowledge; develop and extend their techniques and strategies; and prepare for their future learning through out of class activities and homework. Homework activities are varied, interesting and fun so that the children are motivated; the tasks often compliment the area of Mathematics being taught that week and are set using MyMaths or through a written task which should be completed within homework books.

Parents/Carers

The School aims to involve parents/carers in their child's learning as much as possible and to inform them regularly of their child's progress in Mathematics. Mathematics progress will be reported through a written report three times a year. In addition, Mathematics progress will also be discussed with parents during Parent Consultations in the Autumn and Spring terms. Information about their child's standards and achievements in Mathematics will be shared with parents/carers at these times and also ways that parents/carers may be able to assist with their child's learning.

Parents/carers are encouraged to speak to their child's teacher at any point during the year, either informally or by making a specific appointment to discuss anything to further support them at home.

Parents/carers are encouraged to support their child/children with homework. The school also provides a number of opportunities for parents/carers to learn about what their child is learning and the way their child is being taught through Parent Mathematic Workshops.

Subject Leader

The role of the Subject Leader is to provide professional leadership and management in Mathematics in order to secure high quality teaching, effective use of resources and high standards of learning and achievement for all pupils.

They will achieve this by affecting the following key areas: strategic direction and development; learning and teaching (including observing lessons, planning and marking and presentation); leading and managing staff; and efficient and effective deployment of resources.

The Subject leader will prepare and update the related policies and prepare a subject improvement plan and subject SEF annually.

The Subject Leader will train and coach staff on Mathematical pedagogy within the school and keep up to date with developments from a county and national level.

The Subject Leader has regular discussions with the Head Teacher and other senior leaders about learning and teaching in Mathematics and provides data and a subject overview of the strengths and development points of Mathematics.

During the academic year the Subject Leader will report learning and teaching, data and a subject overview to the governor overseeing the subject.