Lake Haven
A special Place To Learn
Mathematics Policy

Eritten: August 2022 by Lindsay Taylor
Reviewed: August 2025 by Tom Cooper
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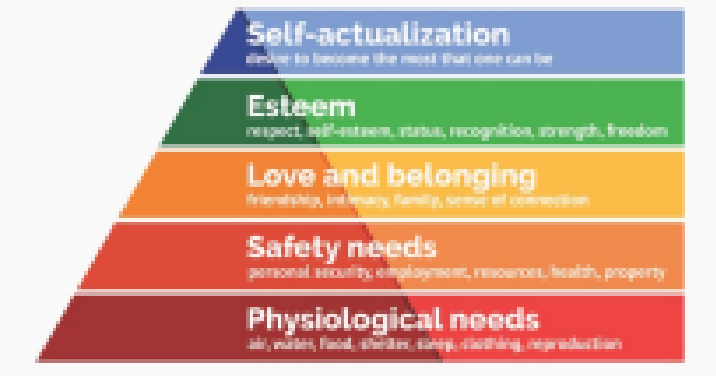
Key Purpose

All children who attend Lake Haven School have an Education, Health and Care Plan. Most children who attend Lake Haven have suffered anxiety within mainstream education based around their ASC. The majority of children join in lower key stage two and have often missed significant amounts of education. First and foremost, our intent is to enable the children attending to feel a readiness to learn. Generally, pupils arrive at Lake Haven having felt disengaged with education, unsafe to take risks and having missed significant chunks of the foundations of education. Recognising Maslow's hierarchy of needs:



The staff, school and systems work hard to ensure our pupils are able to have the four foundation needs met in order for them to feel safe to take risks in their learning or social situations. These aspects are complex and interlinked, one often impacting on others. It is only by getting the right balance of pitch and expectation that a child feels safe to take the risk to realise they can succeed and alongside this knowing that the environment is a safe one in which mistakes can be made, and the adults and their peers will support in this process. In addition to this, we ensure that pupils make progress through each key stage appropriate learning, acquiring and applying key knowledge, so that they can work towards bridging any gaps in learning; and staff work hard to help them to reach their potential in a subject.

This is achieved by:

- Securing trusting and effective relationships
- Securing high quality teaching
- Ensuring that planning meets the requirements of the school's agreed curriculum
- Using ongoing assessments to inform teaching and learning and ensure that all children are provided with appropriate levels of challenge and support
- The effective use of resources

- Ensuring the mathematics is based on real-life scenarios
- Utilising the outside space
- No lessons are longer than 15-20 minutes unless the child initiated learning.

The subject leader's role

Intent

- Having oversight of curriculum coverage and ensuring that the curriculum meets national requirements and reflects current research and best practice
- Ensuring that colleagues are aware of expectations
- Action planning for future development
- Ensuring that appropriate resources and training are in place to deliver a rich and challenging curriculum

Implementation

- Ensuring that teaching within the subject is strong and promotes the acquisition of key knowledge and skills, building on prior learning
- Leading professional development, providing guidance and support to colleagues
- Overseeing assessment
- Making best use of financial and human resources to impact on standards
- Promoting and championing the subject with colleagues, pupils and families.

Impact

- Monitoring the effectiveness of teaching and the impact on learning and standards
- Evaluating and summarising all aspects of the subject to define next steps for development.
- Subject Leaders at Lake Haven School are striving for strong **intent and strong implementation** of the curriculum.

We will strive to have:

- High levels of accountability (knowing and taking responsibility for what is implemented and learned)
- Clear methods to assess pupils' knowledge and skills
- Reflective practice that uses a range of assessment information to inform and tailor teaching so that pupils make at least good progress
- Teacher subject knowledge that is consistently strong across the school
- Senior leaders who make it their business to monitor implementation of the

curriculum
- Leaders and teachers who ensure that all children can access the curriculum
- Leaders and teachers who understand all the component parts of the National Curriculum

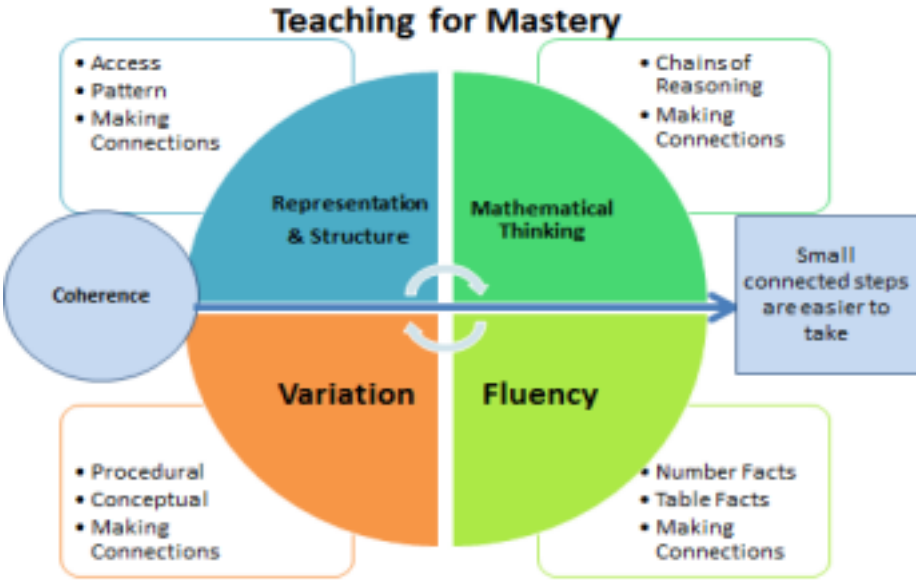
'Mathematics is a creative and highly interconnected discipline that has been developed over centuries providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering and necessary for financial literacy and most forms of employment. A high quality mathematical education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the power and beauty of mathematics, and a sense of enjoyment and curiosity about the subject.' (DfE 2013)

As can be seen from the above introduction, mathematics pervades all aspects of our lives and helps us to make sense of our world. With this in mind, this policy promotes the basic and wider understanding of mathematics, and hopes to instil an enjoyment in the subject by supporting children to engage with it and build upon their own understanding and promote further learning.

Whilst we appreciate that memorising facts and procedures is an important aspect of mathematics, we understand and are passionate that this should form part of a wider skill set which enables pupils to work towards achieving the ultimate aims of fluency, reasoning and problem solving. Thus, enabling them to confidently apply their knowledge and skills in a wide range of contexts.

This policy should be read in conjunction with the following school policies:
- Calculation Policy (appended to this document)
- Assessment Policy
- Marking Policy
- SEND Policy
- Equality Policy

What is teaching for mastery?



MATHEMATICAL THINKING INVOLVES:

- Looking for pattern and relationships
- Logical Reasoning
- Making Connections

FLUENCY INVOLVES:

- Rapid recall of facts and procedures
- The ability to recognise relationships and make connections
- The flexibility and fluidity to move between different contexts and representations of mathematics, choosing the most effective way of working in each case

REPRESENTATION & STRUCTURE

Mathematical structures are the key patterns and generalisations that underpin sets of numbers – they are the laws and relationships that we want children to spot. Using different representations can help children to 'see' these laws and relationships.

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.

COHERENCE

Teachers should develop detailed knowledge of the curriculum in order to break the mathematics down into small steps to develop mastery and address all aspects in a

logical progression. This will ensure deep and sustainable learning for all pupils.

As a result of teaching and learning in mathematics, our aim is that pupils will be able to make at least good progress from their individual starting points and work towards securing the National Curriculums' key aims of fluency, reasoning and problem solving.

In our school we aim to promote children's **curiosity** and enable them to safely take risks and learn from first-hand experience wherever possible.

- Our primary focus is to support the children to become accurate and secure in their **mathematical understanding** from the most basic level so that they can build upon this understanding.
- We aim to enable our children to develop **rapid recall** of facts and patterns and apply their knowledge accurately and efficiently.
- We aim to promote children's ability to **reason** through opportunities to discuss their thinking to demonstrate and deepen their understanding.
- We promote **problem solving** and provide children with opportunities to explore a range of approaches and solutions. This is not only true in mathematical learning, but in almost all aspects of school life.
- We aim to support children **to progress at a pace which matches their own developmental stage**. As unresolved errors and misconceptions cause greater difficulties at a later stage of learning, we promote smaller group learning opportunities whenever possible; and encourage children to revisit their thinking to ensure they feel secure in their understanding and able to move confidently on to next steps and challenges.

Lake Haven School's policy has been developed on the basis of the National Curriculum for England.

The National Curriculum provides a framework for mathematics but the school is aware of the need for flexibility and creativity in teaching and learning in response to the needs of individual children.

National Curriculum Links

- The programmes of study for mathematics are set out year-by-year for key stages 1, 2 and 3. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than

set out in the programme of study in order to meet the needs of individual pupils. All schools are also required to set out their school curriculum for mathematics on a year-by-year basis and make this information available online.

- The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should be based on the security of the pupils' understanding.

EYFS/Pre-Key Stage One teaching

Mathematics for those children working at Pre-Key Stage One is developed through a combination of direct and explicit teacher instruction and modelling and through purposeful, play-based experiences; and will be represented throughout the indoor and outdoor provision. Teaching and learning will be based on expectations from Early Years Outcomes, Pre-Key Stage descriptors and National Curriculum objectives and, when appropriate, will reflect pupil's interests and current topic themes. Mathematical understanding is developed and enhanced through stories, songs, games, imaginative play, child-initiated learning and structured teaching. As pupils progress, they will be encouraged to record their mathematical thinking in a more formal way.

"Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes."

Statutory framework for the early years foundation stage

Key Stage 1 Maths

The principal focus of mathematics teaching to children working towards the

Key Stage 1 objectives is to ensure pupils develop confidence and mental fluency. The essential idea behind the mastery approach is that all children have a deep understanding so that future learning continues to build on solid foundations.

If the subject is represented using a range of concrete materials, pictorial representations and abstract symbols, it will allow children to visualise maths in varied ways, see connections and to independently explore and investigate a topic. Practical activities and resources offer the children a deeper mathematical understanding of more complex concepts. Providing children with visual representations also offers a scaffold when developing a more robust understanding of maths.

Throughout Key Stage 1, it is important that children gain a secure knowledge of number and place value and become confident when using the four operations as well as problem solving where often the approach is not immediately evident.

Alongside number work, pupils begin to identify fractions using shapes, objects and quantities and make connections to equal sharing and grouping. Pupils are taught to count to ten in halves, recognise equivalent fractions and develop their understanding of fractions on a number line.

At this stage, pupils will also develop their ability to recognise, describe, draw, compare and sort different shapes. Pupils have the opportunity to use a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money; and are expected to use related vocabulary for all topics.

Other subjects may have strong links to some maths topics allowing cross-curricular teaching. For example, shape through art or computing, measures through science or positional and directional language in geography. These links are explored and utilised to ensure that we continually maximise learning opportunities for all pupils across an entire curriculum.

Children working towards Key Stage 2 Maths

Lower Key Stage 2 (Years 3&4 appropriate)

The principal focus of mathematics teaching in lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four 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 pupils can use measuring instruments with accuracy and make connections between measure and number.

By the end of this stage of mathematics, pupils should have memorised the multiplication tables up to and including the 12 times table and show precision and fluency in their work.

Upper Key Stage 2 (Years 5&6 appropriate)

The principle 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 and use the correct mathematical vocabulary they need to describe them. By the end of Key Stage 2 objectives, pupils should be fluent in formal written methods for all four operations, including long multiplication and division; and in working with fractions, decimals and percentages.

Alongside the above objectives runs a desire to implement key reasoning and problem solving skills within lessons and throughout the wider life of school. Alongside the curriculum we offer, we aim to develop children's resilience, focus and problem skills by providing them with relevant challenge via various mathematical representations including open ended problems and real word application such as trips and visits & enterprise activities- real life money managing experiences.

Key Stage 3 (Years 7,8 & 9 appropriate)

The principal focus of mathematics teaching in Key Stage 3 is to ensure that pupils extend their understanding of the number system and how this works

in life. We will be asking the children to focus on money, time and measures to ensure that this understanding has the skills that will transfer into everyday life. Due to the nature that has brought the child to Lake Haven, we will enable our children to manage their money, be able to read times tables whether for a bus or train. Our final year will be more about the entrepreneurial skills to help in life.

If the pupils are able, 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 and use the correct mathematical vocabulary they need to describe them. By the end of Key Stage 2 objectives, pupils should be fluent in formal written methods for all four operations, including long multiplication and division; and in working with fractions, decimals and percentages.

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Key Stage 4 (Years 10 and 11 appropriate)

Our aim is for pupils in KS4 to 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.

Mathematics is an interconnected subject in which pupils need to be able to

move fluently between representations of mathematical ideas. The programme of study for key stage 4 is organised into apparently distinct domains, but pupils should develop and consolidate connections across mathematical ideas. They should build on learning from key stage 3 to further develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge wherever relevant in other subjects and in financial contexts.

The expectation is that the majority of pupils will move through the programme of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

This programme of study specifies: the mathematical content that should be taught to all pupils, in standard type; and additional mathematical content to be taught to more highly attaining pupils, in bold type and braces { }.

Mathematics – key stage 4 Together, the mathematical content set out in the key stage 3 and key stage 4 programmes of study covers the full range of material contained in the GCSE Mathematics qualification. Wherever it is appropriate, given pupils' security of understanding and readiness to progress, pupils should be taught the full content set out in this programme of study.

Information and communication technology (ICT) Calculators should not be used as a substitute for good written and mental arithmetic. In secondary schools, teachers should use their judgement about when ICT tools should be used.

Spoken language The national curriculum for mathematics reflects the

importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions. Schools are not required by law to teach the example content in [square brackets] or the content indicated as being 'non-statutory'

Assessment:

Assessment will include formative, diagnostic, summative and evaluative elements to enable effective teaching and learning. In all classes, teacher assessment will be continuous and evaluative to ensure that any misconceptions or areas of difficulty are identified and addressed through the planning and delivery of subsequent lessons or interventions.

At the start of each academic year, teachers meet as a team and discuss the attainment and needs of each child in the school. Assessments are carried out in class each term and are used as part of a range of evidence to confirm the progress that each child has made. Termly pupil progress meetings take place with the teaching staff, and children who are not making at least good progress are identified and provided with additional support to boost their learning.

Our pupils will only take part in National End of Key Stage Assessments where we believe that they are ready and that it is in their interest to do so. All children for whom we feel the formal assessment process (formerly known as SATs) could be harmful to their mental health will be withdrawn from participating.

Lake Haven's ultimate aim is for all of our students to be entered into their GCSE Mathematics examination. We follow the robust scheme of White Rose Mathematics alongside the professionality of a mathematics trained teacher to support our pupils.

Involvement of Parents and Carers

We encourage parents and carers to be involved by:

• Inviting them into school twice/three times yearly to discuss the progress of their child.

• Providing them with current targets, an interim report and a yearly report outlining their child's progress and achievements.

• Holding workshops for parents and carers or family days.

Inclusion

Teaching mastery is beneficial because it offers all pupils access to the full maths curriculum. Our inclusive approach, and our emphasis on promoting multiple methods of solving a problem builds self-confidence and resilience in pupils. Though the whole class goes through the same content at the same pace, there is still plenty of opportunity for differentiation and personalised learning.

Taking a mastery approach, differentiation occurs in the support and intervention provided to different pupils, not in the topics taught, particularly at earlier stages. There is no differentiation in content taught, but the questioning and scaffolding individual pupils receive in class as they work through problems will differ, with higher attaining children, or those pupils who grasp concepts quickly, challenged through more demanding problems which deepen their knowledge of the same content. Those children who are not sufficiently fluent are provided additional support to consolidate their understanding before moving on. Pupils' difficulties and misconceptions are identified through immediate formative assessment and addressed with intervention – commonly through individual or small group support later the same day where possible.

Where children make less than expected progress, efforts are made to ensure relevant support is put in place to help support the child. No child will be denied a full curriculum, however, and concepts will be revisited throughout the year during challenge times or intervention times to help with long term understanding.

Organisation

• All children will be offered a daily maths lesson and mathematical skills also run through many other areas of the curriculum.

• Each lesson focuses on one clear learning objective which all children are

expected to master; and extension activities enable those children who grasp the objective rapidly to extend their learning by exploring it at greater depth.

• Each lesson can include elements of: **fluency**, to practise skills; **reasoning**, to deepen understanding; and **problem solving**, to apply skills depending on the objective being taught and the understanding of the children.

• Teachers follow the White Rose Maths Scheme of Learning; and use the associated planning, assessment and resource materials to aid maths teaching in school. This facilitates full curriculum coverage; including ensuring that fluency, reasoning and problem solving opportunities are provided within lessons. Other resources provided by the DfE, NCETM and NRICH are also utilised.

• Whole class teaching is adopted (where appropriate to the child's EHCP needs) and children are taught in mixed classes. We believe that all children should have the same quality and range of experiences and, to ensure this, we aim not to group children based on attainment (though we accept that at times this may be necessary in order to meet specific needs).

• Every classroom has access to a range of practical apparatus to support children's learning, with additional resources stored centrally. We aim to review this and enhance it each year.

Monitoring and Review

The monitoring of maths teaching and pupil progress is the shared responsibility of teachers, subject leader and the senior leadership team. The work of the subject leader includes supporting colleagues in the teaching of maths and keeping up to date with current research and developments; as well as providing a strategic lead and direction for the subject. The school's proprietary body receives regular updates to inform them of the vision for continually driving forward teaching for mastery.

Within school we regularly conduct peer review sessions whereby we critically look at maths as a subject across the school. We observe lessons, speak to children/staff, analyse books/marking and ultimately come together as a staff to critique what we are doing well and what we want to develop.

Learning Outside of the Classroom

The daily mathematics lessons will 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 will be extended through out-of-class activities.

The curriculum at Lake Haven aims to be as integrated as possible and to make learning relevant to children's lives. Therefore, links between mathematics and other subjects are encouraged and teachers should identify opportunities for numeracy in their planning of other subjects whenever appropriate. This will allow children to begin to use and apply mathematics in real contexts.

How do we know what impact we've had?

• Some of the most significant impact we can have at Lake Haven School is to enable the children attending to access education. This will be evident by the child's readiness to learn, readiness to take risks and building esteem.

• We help children to develop resilience, manage their distractions, manage their own sensory needs with increasing independence, develop social learning characteristics and learn acceptance. Pupils at Lake Haven begin to understand equity as a support mechanism to enable all children to achieve their goals.

• Helping children make academic progress has to be very carefully balanced with building the characteristics of effective learning that enable children to want to learn. Too much pressure, content and pace can impact on the complex needs that many of our pupils present with regarding their social, emotional and mental health.

• GCSE Results from Summer 2027