

The Levett School



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Positivity | Determination | Reflection | Integrity

Maths Policy

<i>Policy agreed by Governors on:</i>	31/01/2023
<i>Review date for Governors:</i>	October 2022
<i>Allocated Group/Person to Review:</i>	Helen Megaw and Hannah Buchanan
<i>Agreed frequency of Review, by allocated person:</i>	Every Year
<i>Last Review date:</i>	21/07/2022

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Rationale

Maths is essential to everyday life, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Our curriculum in mathematics aims to develop fluency 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. We are also striving to allow pupils to reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, develop mathematical arguments and proofs and make conclusions based on logical inferences. Our intention is also for pupils to 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; as such resilience is a crucial skill that we will be cultivating in pupils. Pupils also need to be able to utilise technology effectively, such as scientific calculators, to perform increasingly complex problems (as well having strong written and mental mathematical skills, not instead of).

We promote equality by working through the breadth of the curriculum at the same pace for all pupils so that all pupils can achieve regardless of their starting point. The study of mathematics conditions the brain to see connections and builds neural pathways that make the brain stronger for all other things. Mathematical study enhances pupils' general intelligence and supports the life-long learning of pupils by: creating a framework in the brain for systematic thinking, developing the ability to solve and analyse problems, stretching the mind to work on unfamiliar tasks with confidence, developing the sequencing skills critical to arriving at accurate results or logical conclusions, promoting caution and care in thinking and deciphering complex mathematical problems to arrive at an accurate answer and learning through trial and error to integrate different principles to arrive at a logical conclusion.

In addition to these disciplinary aspects of the mathematics curriculum, the actual mathematical knowledge and skills that pupils learn are also vitally important in allowing pupils to achieve elsewhere in school. Topics studied in mathematics are prerequisite for several disciplines across all key stages such as geography, psychology and economics (to name only a few). Mathematics also provides a theoretical springboard for the ever-evolving STEM sector. Nationally, there are huge shortfalls in job applicants with strong STEM skills.

Mathematics is a discipline which is universal; transcending language and cultural differences. Throughout its rich history, mathematics has adopted elements from around the world and gives pupils the opportunity to appreciate fundamental truths and create water-tight arguments based on logic and reasoning; as such it helps contribute to the student's spiritual, moral, spiritual and cultural development. Ultimately, the intention of the maths curriculum is to provide pupils with the necessary thinking skills and content to be successful in their next stage of life or education.

The Levett School understands that maths is an important skill within school as well as in pupils' everyday lives outside of school. The school realises that a good understanding of maths provides a foundation for the world and that the ability to reason mathematically is applicable to a number of jobs, including in science, technology and

engineering. To ensure pupils are ready for the wider world and their careers, The Levett School is committed to the high-quality teaching of maths.

Modification to the scheme of work and subject objectives may be made on response to evaluation feedback from individual class teachers. Science is a time-tabled subject, taught by Class Teachers. The teaching and learning approaches used are carefully matched to the learning needs of pupils, taking into account their individual needs, SEN and learning styles. A range of teaching methods are employed, which include teacher presentation and demonstration, group discussion, practical work, problem solving, student presentation, role play, individual work and investigation.

Through the teaching of mathematics, the school aims to:

- Encourage all pupils to engage in the maths curriculum.
- Promote enjoyment of learning through a combination of practical activity, exploration and discussion.
- Promote confident engagement and competence with numbers and the number system.
- Develop the ability to solve problems through decision-making and reasoning in a range of contexts.
- Develop a practical understanding of the ways in which information is gathered and presented.
- Explore features of shape and space, and develop measuring skills in a range of contexts.
- Understand the importance of mathematics in everyday life.
- Achieve a functional level of numeracy.

Content and Sequencing

For the teaching of maths the KS1, 2 & 3 National Curriculum is followed. Pupils are assessed on entry which enables us to fill in the gaps in knowledge that pupils arrive to our school with, due to behavioural, SEMH or SEND, the priority is to re-engage and inspire pupils and prepare them for Entry Level and or science at KS4.

The pathways below are based on a full time offer of 25 hours unless a unique timetable has been agreed, which most of our pupils benefit from. If required, pupils that need to be on a reduced timetable, receive a bespoke pathway to make sure they still have access to as much science education as possible and can still gain a qualification.

Teaching is extremely bespoke across the trust. Always in smaller groups than in mainstream settings, with a more relaxed environment and tailored to each individual's interests and abilities. This further supports the pupils to re-engage with the subject and be able to close the attainment gaps they have suffered before arriving at the school.

National Curriculum Aims

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.

Lessons will allow for a wide range of mathematical, enquiry-based research activities, including the following:

- Questioning, predicting and interpreting
- Pattern seeking
- Collaborative work
- Problem-solving activities
- Classifying and grouping

Maths Mastery

A maths mastery approach is taken to the curriculum, in which fluency comes from deep knowledge and practice. This means that structured questioning is used to ensure that pupils develop fluent technical proficiency and think deeply about the underpinning mathematical concepts.

Planning

- Long-term planning will be used to outline the units to be taught within each year group.
- Medium-term planning will be used to outline the vocabulary and skills that will be taught in each unit of work, as well as highlight the opportunities for assessment.
- Medium-term plans will identify learning objectives, main learning activities and differentiation.
- Medium-term plans will be shared with the subject leader to ensure there is progression between years.
- Short-term planning will be used flexibly to reflect on the objectives of the lesson, the success criteria and the aims of the next lesson.
- Short-term planning is the responsibility of the teacher. This is achieved by building on their medium-term planning, taking into account pupils' needs and identifying the method in which topics could be taught.
- All lessons will have clear learning objectives, which are shared and reviewed with pupils.

Summative

Testing is a key component of assessment in mathematics. Each unit of work has a test that accompanies it.

KS2: White Rose Maths unit assessments are completed pre and post of the unit so that assessment can be tracked. Pupils will have access to use of manipulatives during these sessions to support independence.

KS3: Revision resources are provided between completion of the unit and taking the assessment. Tests are marked by class teachers and written feedback provided. This will be in the form of a RAG rated PLC, showing the topic of the question and the marks scored. The red and yellow topics will then be covered in the separate maths intervention lessons. Records of student scores are stored by class teachers and progress is tracked internally. The PLC's are also linked to specific videos on Corbett Maths.

Formative

During each lesson, pupils work is live marked and feedback given either written or verbally. Big Questions are given at the start of each lesson and these will be answered at the end of the lesson, allowing the learning from the lesson to be assessed.

At KS3 in the start of each lesson, the pupils are given a Big Question. By the end of the lesson the pupils should be able to answer the question from the learning which has occurred during the lesson. This questions are linked to the real world, to establish links between learning within school and things which occur in everyday life. RISC activities at the end of each lesson will allow the independent knowledge of the pupil to also be assessed.

During the Maths intervention lessons, pupils will also complete a skills check exercise, to keep repeating basic skills and topics that are not currently being covered. This is to help with the retention of these skills over a long period of time.

Schemes of Learning

The Levett School follows the White Rose Maths schemes of learning and due to our mixed year group classes at Primary level we follow the mixed aged schemes and gap fill where appropriate. We do the same with our KS3 curriculum but these have been realigned to meet gaps in pupil knowledge and sequencing of understanding. See below:

KS3 Curriculum

Year 7	Topic	Year 8	Topic	Year 9	Topic
	Place Value and Ordering		Ratio and Scale		Revision Number
	Add and Subtract		Proportion		Maths Money
	Multiply and Divide		Multiply and Divide Fractions		Ratio and Proportion
	Number sense (mental maths)		Brackets, equations and inequalities		Rates
	Negative numbers		Area of circle and trapezium		Use Percentages
	Algebraic Notation		Angles in parallel lines and polygons		Form and solve equations
	Equality and Equivalence		Represent data		Algebraic representation
	Sequences		Data cycle		Test Conjectures
	Fractions, Decimals and Percentages and equivalence		Averages		3D shapes
	Fractions and percentages of amounts		Tables and probability		Construction and Congruency
	Add and subtract fractions		Coordinates and graphs		Enlargement and similarity
	Construction and Measuring		Symmetry and reflection		Pythagoras
	Geometric Reasoning				Deduction using shape
	Probability and Venn diagrams				Probability
Prime Numbers		Straight line graphs			
		Rotation and Translation			

Cross-Curricular Links

Wherever possible, the maths curriculum will provide opportunities to establish links with other curriculum areas.

English

- Mathematical terminology is used, where appropriate.
- Maths-based texts are sometimes used in English lessons and in guided reading sessions.

Science

- Pupils' data collection and analytical skills are further developed through the conduction of physical experiments, using units of measurement, calculating averages and interpreting results.
- Pupils record their findings using charts, tables and graphs.

Humanities

- Data analysis, pattern seeking and problem-solving skills are developed through the teaching of geography.
- Pupils' understanding of time and measurements of time are developed through discussions of historical events.

ICT

- Pupils are encouraged to use calculators and other electronic devices, gaining confidence throughout their school experience.
- ICT will be used to enhance pupils' maths skills through the use of online resources and the creation of spreadsheets and charts.

ICT will be used to record findings, using text, data and tables