Overleigh St Mary's C of E Primary School

Mathematics Policy

Signed by:

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'A high quality mathematics education 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.'

(National Curriculum 2014)

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.
- Understand the interconnectedness of mathematics across subjects as well as understand its **importance in everyday life**, within communities and our world.

Our aim is for all pupils to be informed, articulate and empowered.

Informed

- Children have a secure understanding of key mathematical concepts and can solve problems in a variety of different ways
- Children understand the importance of maths in their daily lives and know how it relates to the real world

Articulate

- Through the teaching of subject specific vocabulary and stem sentences, children develop their understanding of key mathematical concepts, which enables them to communicate and reason effectively.

Empowered

- By giving children correct vocabulary and stem sentences, all are able and confident to access the learning and explain their thinking.
- The focus on having a growth mind-set is essential in the teaching of maths, empowering children with the confidence to have a go, to learn from mistakes and to keep trying and improving.
- Children explore the purposes of maths within a context as well as its meaning within their own life and future.

The following document sets out the essence of the teaching and learning of mathematics at Overleigh St Marys Primary School. Children will experience the awe and wonder of mathematics as they learn to solve problems; develop ways of looking at patterns; discover efficient strategies and make links between the different areas of maths. Children are engaged and inspired by a mastery teaching approach that enables all to achieve and succeed. Mathematical fluency and understanding of number are crucial to children's future success and are taught in depth at Overleigh St Marys. Oracy is a core element of our maths teaching to enable children to articulate their ideas clearly and develop a deeper understanding of the maths. We encourage children to use approaches, which work for them, by equipping them with a range of efficient strategies and ensuring an understanding of them. We intend to make maths practical, relevant and engaging, so that our children are confident and excited by maths. They will leave Overleigh St Marys understanding how mathematics is a vital life skill which is useful throughout their life and future careers.

CHILDREN WITH SEND
Overleigh St Marys is an inclusive school and as such, do not believe in narrowing the curriculum for any learner. Our curriculum is designed with inclusion of all, and our curriculum intent is therefore the same for all children including those with SEND. However, we are mindful that there are an abundance of factors which need to be considered in order for all learners to be able to access learning according to their individual needs. Therefore, whilst our curriculum intent is the same for all learners; our implementation of the curriculum may well look different for different groups of children including those with SEND. Teachers will plan, scaffold, challenge and embed learning through activities which are amended to meet individual children's needs. If a child's needs are best met by following an alternative plan, including coverage of the content from a previous year, this will be discussed with the SENCO. Children are supported through a multi-sensory approach to their learning based on the outcomes written in their SEN support plan or EHCP. Children with specific learning difficulties related to mathematics may require further, targeted support and for their learning to be broken into even smaller steps, with extra time given to develop the key skills, concepts and understanding required to accelerate their progress. Throughout their time with us, in accordance with our school's vision, we ensure we have and maintain high expectations and aspiration for all pupils, including those with SEND.

Area	Intent/Rationale	Implementation	Resources to support	Impact
Scheme of work and progression	Using a scheme of work allows teachers to plan for progression and the mastery approach in the most effective way, whilst also building fluency. We teach for mastery, following the White Rose and PowerMaths scheme of work. The mastery approach recognises the value of developing the power to think rather than just do. It also recognises the value of making a coherent journey in which whole-class groups tackle concepts in very small steps, one by one. Teachers are expected to use the scheme as a basis for their teaching and adapt as necessary, always using their own professional judgement in the first instance. A scheme of work is a guide and should not solely dictate either the content or the speed of the lessons if assessments indicate otherwise.	Teachers use the long term plan to schedule the units they will teach and the order they will be taught in. Medium term plans are provided so that they can be adapted if necessary and provide the basis for individual weekly planning. Through the scheme the children's mathematical journey is supported, giving them experiences of mathematical talk, concrete experiences, pictorial representations, fluency activities and reasoning problems that challenge their mathematical thinking. Teachers should adapt the scheme when necessary to take account of prior learning and the individual needs of the pupils.	Concrete resources including: numicon, Cuisenaire, place value counters, Dienes, bead strings, multilink etc. Pictorial representations such as: bar modelling, part whole models, place value charts. Teachers have access to premium White Rose resources and the PowerMaths online planning (Active Learn Primary) NCETM website and the use of prioritization materials. NRICH website to allow for application of skills through problem solving.	Children have a secure and deep understanding of mathematical concepts. Teachers use the scheme confidently, developing their subject knowledge and their knowledge of progression across year groups.
Planning and lesson structure	Planning for maths should allow the teacher to plan for a series of lessons that demonstrate both the consolidation and progression of knowledge and skills. It is a metacognitive process that should enable the teacher to combine their knowledge of the subject, pupils and resources to ensure the teaching allows for the learning to be effective and meaningful. Planning at Overleigh will take into account ongoing CPD	Planning is done collaboratively with a parallel teacher(s) but should be individual to the needs of each specific class. Each lesson will be sequenced using a notebook/PPT which incorporates each part of the lesson structure. 1. Flashback 4 - help boost children's long-term memories and retrieval of key information	White Rose and Power Maths Scheme TT Rockstars Flash back 4 (White Rose) Notebook/PPT	Teachers plan for a series of lessons which give the children a deep understanding of maths. Careful consideration is given to ensure balance of depth and breadth. They are reflective and adaptable to take account assessment. Links are made through and across other areas of maths and other subjects to ensure the children have a deep understanding of mathematical concepts.

	on metacognition and mastery teaching. Planning evolves with time to reflect how the children respond to the teaching and to allow for misconceptions to be addressed effectively. Planning also incorporates work on spaced interleaving techniques and continued practice which has been shown to be the most effective method in aiding memory and facilitating the retrieval of facts automatically, thus reducing cognitive overload when dealing with more complex calculations. If an objective is not met, this will be revisited the following day and the lesson may be repeated if necessary.	through spaced interleaving techniques. 2. WALT and key vocabulary to be explained. This also provides a chance to reflect and activate prior knowledge linked to current learning 3. A discovery question will provide a real-life scenario for the children to explore using manipulatives (concrete), representations (pictorial) and calculations (abstract). This will contain a considerable amount of mathematical talk. 4. STEM sentences are used to help children explain what is happening using the correct vocabulary. 5. Through the use of MICE children will show their understanding of the concept. 6. Questions will be shared to explore the concept further with more examples and the teacher will discuss different strategies. 7. Independent practice questions through which the children will achieve the key skill. These will contain reasoning and challenge questions which extend the children's understanding, expose them to key vocabulary and challenge their understanding of the skill. 8. A chance to reflect on their learning, ask questions and plan next steps.		
Times tables / Number bonds	These calculations will form the basic building blocks of much of what they learn in maths right up to (and even beyond) their GCSE	The explicit teaching of times tables should sit alongside the children's opportunities for independent practice. This involves	Third Space Learning Termly planner for times tables	Children know the times tables and associated division facts (for the times tables to at least their own year groups expectations). They

	courses, such as division, algebra and fractions. Children will struggle to access reasoning and mastery concepts/questions without the means by which to record their calculative thinking. Children at Overleigh need the firmest grasp of basic skills in order to apply to higher order reasoning and practice provided through the programmes on offer to ensure this happens in the most effective and engaging way.	chanting, songs e.g. BBC supermovers, exploration of patterns, recall, counting stick work. All children (Y1-6) to have access to Times Tables Rockstars and/or Numbots TT Rockstars/times tables practice is built into the planning (The amount will depend on the needs of classes and year group expectations) TT Rockstar sheets/other times table practise to be sent home for homework as part of basic skills focus. KS1 children who are falling behind targeted through Numbots club (lunchtime club) Children in KS2 who are not secure should still be encouraged to use Numbots. KS2 children who are falling behind targeted through TT Rockstars club (lunchtime club TBC) Children in year 4 with complete 3 unofficial MTC on TT rockstars prior to the official test which will be completed in Summer 2.	TT Rockstars (usernames and logins shared to all children and parents) Hit The Button (Topmarks) Numbots (usernames and logins shared to all children and parents)	recall them at speed and with fluency. Knowledge of them is evident in assessment and in their approach to calculation. Aim for 100% of children to score >20 in the times tables check (Y4). Catch up for any who did not in Y5. Children know the number facts for at least their own year groups expectations and can recall them at speed. Fluency and knowledge of them is evident in assessments and in their approach to calculation.
Assessment	Formative assessment is threaded throughout both each lesson and unit of work; and appropriate revisions to planning are made by the class teacher to ensure all	Teachers use formative assessment strategies such as strategic questioning, think-pair-share, exit questions etc. to assess the	Power Maths end of unit assessments. Progression documents.	End of unit assessments show progress through the current year group unit and give an accurate indication of the depth of understanding.

	lessons are tailored to best meet the needs of their children. Formative assessment is also useful for building students' metacognitive awareness of how they learn and what they need to work on, which promotes greater responsibility and independence when it comes to learning. End of unit assessments (taken from Power Maths and the White Rose) are a chance for the child to show their understanding of what they have learned in that unit of work. These can be used to help teachers form judgements about the child's progress and attainment. Summative assessments help teachers to form a judgement, alongside teacher assessment and work in books, about the progress and achievement. They prepare the children for more formal testing that is done at the end of each Key Stage. At Overleigh these assessments are part of the teaching cycle of assessment for learning and should be administered in a way that makes them as accessible and as non-threatening as possible.	children's learning in order to adapt and plan for future lessons. Whenever possible, marking should be carried out in the moment, during the lesson. Teachers use live marking to give immediate feedback, which allows for any misconceptions to be addressed or learning deepened through questioning and further maths challenges. Teachers should use end of unit assessments to gauge a child's progress and use them to form judgements about the child's attainment in that particular area of maths. Teachers should be aware of any gaps and plan for opportunities to address them. Summative assessments are completed across Key Stage 1 and 2. This includes arithmetic and reasoning papers. These are carried out towards the end of the Autumn, Spring and Summer terms. Year 5 A baseline assessment is carried out in Summer 2 using a past KS2 SAT paper. This provides a baseline indication prior to teaching the Year 6 curriculum and used to set attainment targets	WRM termly assessment KS1/KS2 previous SATs assessments	Through summative assessments, teachers are able to make accurate assessments of children's learning and progress and use this to help inform future learning. Data allows comparisons to be made and progress to be judged.

		Year 6 Past SATs papers are completed in throughout the Spring term to help prepare the children.		
Interventions	Interventions will be both planned for and 'live', meaning that misconceptions are dealt with immediately and high attaining pupils are challenged appropriately. Some interventions are set, where the same children each week receive extra maths support. Others are more flexible, meaning there could be different children each week who didn't grasp a certain concept and need additional support to keep up.	Teachers who have weekly 'set' interventions, will follow the RtP documents from NCETM to ensure children are keep up with their peers. The focus is around the use of manipulatives to aid the children's understanding of a certain concept. Vocabulary is explained further and children are expected to use the correct vocabulary when answering questions. There will be a short assessment at the end of a strand. 'Flexible' interventions will focus on the objective or concept which needs addressing from the unit of work which is being followed.	RtP documents NCETM website Power maths strengthening activities	By using the NCETM ready to progress documents, this will ensure children are secure in the foundations that they need in order to make progress. Having flexible interventions will enable children to keep up rather than catch up.
Books	Books recording the children's work are an important element of evidencing progress and allowing the children to learn to work mathematically and systematically. They should reflect on the learning journey throughout a unit and include aids to help the children remember and understand mathematical concepts. Opportunities for fluency and developing reasoning and explanation should be evident.	Within maths learning journals, there should be evidence of: - Flashback 4 (daily) - Representations, calculations and explanations (MICE) - Challenges to deepen learning - End of unit assessments For children who find certain concepts tricky, examples of teacher intervention will be evident or evidence of feedback	WRM pre and post unit assessment WRM schemes of learning Progression documents (Maths National Curriculum) Ready to progress documents NCETM website	Beautifully presented books which the children are proud of. Books reflect the learning journey, the maths curriculum and provide high quality and accurate evidence of the children's knowledge, skills and understanding. They also reflect a strong work ethic and the ability to challenge their thinking and learn from their mistakes. Misconceptions are addressed promptly through timely feedback,

	Presentation should be neat and reflect care and thought.	given. This may be live (in the moment) or after the lesson in a keep up intervention.		and as a result progress is cumulative and obvious over time.
Early Years Foundation Stage	In EYFS at Overleigh we ensure that all children have a firm foundation of mathematical understanding on which they can develop and build their mathematical knowledge. Through engaging activities appropriate to their individual development the children will build schema and develop mathematical concepts. We follow a mastery approach using the White Rose and Power maths resources which are implemented throughout the provision and focused teaching sessions. The children will be able to demonstrate the new concepts they have learnt in their independent continuous provision.	All children in the Foundation Stage have daily opportunities to develop their mathematical understanding, primarily through play, to meet the needs of Development Matters. We provide the children with daily, intentional, number focused mathematical activities to successfully build their understanding. There are also opportunities for extended mathematical discussion to further develop thinking. Within the continuous provision, we have a careful triangle of the child-adult-environment working together to ensure the children are engaged and making progress. In our mathematics teaching, this continuous provision time is used in a variety of ways to provide children with mathematical learning opportunities. Regular observations ad assessments help to ensure that children that need additional intervention to consolidate their mathematical understanding are identified and supported by appropriate intervention.	Development Matters ELGs Early years baseline assessment Concrete resources	Children will have a curiosity and enthusiasm for mathematics. Children have a secure understanding of the fundamentals of mathematical concepts.
SEND	Overleigh is an inclusive school and as such, do not believe in narrowing the curriculum for any learner. Our curriculum is designed	Teachers will plan, scaffold, challenge and embed learning through activities which are amended to meet individual	Concrete resources including: numicon, Cuisenaire, place value counters, Dienes, bead strings, multilink etc.	The curriculum ensures that all pupils, including those with special educational needs and/or disabilities (SEND), get the same

	with inclusion of all, and our curriculum intent is therefore the same for all children including those with SEND. However, we are mindful that there are an abundance of factors which need to be considered in order for all learners to be able to access learning according to their individual needs. Therefore, whilst our curriculum intent is the same for all learners; our implementation of the curriculum may well look different for different groups of children including those with SEND. One of the key aspects of mastery is small steps of progress, and this is an approach that can work well for children with SEND too. The maths progression at Overleigh will break down complicated concepts into manageable steps, enabling children to focus on one new aspect at a time and build on this understanding as their lessons progress.	children's needs. If a child's needs are best met by following an alternative plan, including coverage of the content from a previous year, this will be discussed with the SENCO. Teachers use a CPA approach which uses concrete objects to build children's understanding, allowing them to see, feel and explore the numbers. Children with SEND learn to work independently by gradually decreasing the levels of support, if appropriate. At first, they may need a carefully structured problem, complete with relevant models as they get to grips with the new method, but teachers can then start to reduce this support bit by bit, so that the children are doing a little more for themselves with each new question. This allows them to build confidence and procedural fluency as well as increasing their independence within learning. Teachers do not shy away from using the correct mathematical terms often as children love to learn new words and explore their meaning. Using maths words frequently and consistently throughout the school will help embed the language and the concepts they represent.	Use of STEM sentences Scaffolds e.g. worked example, partially filled numberline. Pictorial representations such as: bar modelling, part whole models, place value charts. 1-2-1 target time Discussions with SENDCO Third Space Learning (to be looked into)	quality learning opportunities. Staff adapt their teaching for the individual needs of pupils with SEND in the classroom to ensure all children make progress and achieve their full potential.

Metacognition	The Education Endowment Foundation (EEF) has identified that children who develop their metacognitive strategies effectively can make up to 8 months additional progress. At Overleigh we are continually looking to accelerate progress for all children, but especially those who need to catch up and keep up. Metacognition is integral in all areas of the curriculum and Overleigh is working on embedding it into the planning. Changing the way our children think about learning and engage in the learning process will have a long term positive impact in all areas of the curriculum.	1. Planning format supports metacognitive strategies ● Activate prior knowledge ● Explicitly teach, model and practice strategies ● Independent practice where the children plan, monitor and evaluate their learning ● Reflection of the learning 2. Each classroom has a visual representation of 'being in the pit' which supports conversation around facing challenges and the tools they need to tackle them (will be in place by the end of 2023-2024). 3. Metacognitive talk - children know the process of learning. They engage in talk about working and long term memory which aids metacognition (beginning CPD of metacognition this year).	CPD relating to metacognition will be carried out half-termly throughout 2023-2024 and any resources will be accessible on the staff drive. EEF guide to metacognition copies downloadable https://educationendowmentfoundation.org.uk/tools/guidance-reports/metacognition-and-self-regulated-learning/	Increased metacognitive skills impact on all areas of learning. Children are better able to retain and apply their learning. This is evident not only in data and in books but also in their ability to articulate their learning.
Developing a teaching for mastery	Mastering maths means pupils of all ages acquiring 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 maths that's been taught to enable pupils to move on to more advanced material.	The essential features of teaching for mastery are implemented consistently which are: - working to develop understanding - keeping the class together working on the same content - believing that every child can succeed ● An expectation that all pupils can and will achieve. ● The large majority of pupil's progress through the curriculum at the same pace. ● Teaching is underpinned by methodical curriculum design, with	Overleigh is involved in the Primary Teaching for Mastery Sustaining Programme. The maths lead will meet others as part of a 'Teacher Research Group (TRG)' every term. The meetings involve shared lesson observations and discussion. The maths lead will receive termly support from a Mastery Specialist who keeps in contact and shares experiences from their classroom and school settings. The ongoing work between participating teachers creates a whole year of	A greater proportion of children reach age related expectations and an increasing number reach greater depth. Teachers are more knowledgeable about, and skilled at, teaching maths; classroom practice changes in ways designed to help pupils develop deeper understanding; and pupils are learning maths more securely.

		units of work which focus in depth on key topics. Lessons and resources are crafted carefully to foster deep conceptual and procedural knowledge. ● Practice and consolidation play a central role. Well-designed variation builds fluency and understanding of underlying mathematical concepts in tandem. ● Teachers use precise questioning to check procedural and conceptual knowledge. ● A mastery curriculum often involves whole class teaching, with all pupils being taught the same concepts at the same time. Teachers assess in lessons to identify who needs intervention so all pupils keep up.	school-to-school collaborative professional development.	