



At Lothersdale Primary School, the purpose of mathematics is to equip children with the knowledge, skills and understanding to become assured mathematicians, with the confidence, depth and transferability to apply their understanding of maths to problem solve new situations in their next stage of life.

Children are taught to be enthusiastic, passionate and resilient mathematicians. Children are tasked to think and reason mathematically, applying skills fluently and efficiently, arriving at the accurate answer. At Lothersdale Primary School, we are ardent about ensuring that all children receive a knowledge rich mathematical education through well sequenced and well planned units of work which builds upon each child's prior learning.

Intent

- Mathematics is taught throughout the school through deliberate practice in a supportive environment which enables children to improve their fluency leading to mastery and an alteration to long term memory.
- The mathematics curriculum is ambitiously planned following White Rose Hub in a sequenced way to build knowledge, skills, understanding and mathematical vocabulary from Early Years to Year 6 in coherent small steps.
- Knowledge in each unit builds in small steps to ensure mathematics lessons will not overload working memory to ensure children know more and have a broad and deep understanding of mathematical concepts.
- The mathematics curriculum will equip children with a deep and embedded understanding of mathematical components.

Implementation

- The school's curriculum ladder (White Rose Hub) builds on knowledge from one year to the next so that teachers have a clear understanding of what children have learnt before and what they will learn next.
- 'ARRRGH!s' are carefully planned to ensure knowledge is retained in the long term memory and any knowledge gaps are filled with appropriate intervention. For mathematical components covered at the end of a school year, the recalls are planned for the following school year. ARRRGH!s are completed after 2, 6 and 12 weeks as a low stakes assessment.
- Pre-assessments are used so that teachers know each child's starting points to a new unit and are able to address any misconceptions from prior learning.
- Teachers will plan lessons to create deeper understanding rather than accelerate children to new content. Concrete, visual and abstract resources will support children's learning ensuring components are embedded. Variation will be planned into each lesson to develop children's confidence when reasoning.
- The school's long term plan is developed from the national curriculum and using White Rose Hub guidance. It provides structure for all teachers to follow but allows for some flexibility within its timings of different units based on the current cohort.

Impact: To be reviewed at the end of each year

Substantive and disciplinary knowledge in mathematics

The mathematical curriculum is one in which substantive knowledge and skills merge in a way that does not happen in any other subject area. Children need substantive knowledge in mathematics and they will be taught to make links across different mathematical components to build this substantive knowledge in their long term memory.

Reasoning and Problem Solving

Mathematics provides many opportunities for children to learn follow rules and structures and apply this to a range of problem solving scenarios. In mathematics at Lothersdale, children work independently and collaboratively to solve a range of problems, working through their errors to improve their learning. A.P.E (answer, prove and explain) is used with supporting STEM sentences to structure reasoning problems. Children become resilient learners and build a range of strategies to approach more cognitively complex problems where the 'in point' isn't always at first obvious.

Multiplication

Multiplication facts are crucial to becoming an assured mathematician. Our intent is for all children to develop automaticity in all multiplication facts by the end of year 4. Multiplication facts are taught explicitly in dedicated maths lessons. This knowledge is consolidated through our planned KIRF (key instant recall facts) targets. In year 2, the children are introduced to the 2, 5 and 10 multiplication tables. In year 3, the children learn the 3, 4 and 8 times tables and in year 4 the 6, 7, 9, 11 and 12 times tables. This is essential knowledge and any gaps are quickly identified and supported with intervention work. Times Tables Rockstars is used to promote times tables at Lothersdale. Introduced in year 2 and used routinely throughout KS2, it is a fantastic tool to build automaticity of times tables.

Assessment in mathematics

Assessment, both formative and summative, is an integral part of day-to-day mathematics planning, teaching and learning at Lothersdale Primary School. We ensure that children are provided with age appropriate, formative feedback allowing them to move their learning on in a sequential way. A balance of verbal and written feedback is provided and children use this to move on in their learning. As a school, we feel it is important that the children engage with this feedback and that they are able to articulate their own progress. After a unit has been completed, the children will have low stakes 'ARRRGH!'s ensuring the knowledge has been retained in the long term memory. These recalls are carefully planned by the teachers and can take many forms, including quizzes or whole class discussions. We use summative assessments to monitor the children's progress with three data collection points throughout the year.

Reviewed September 2022 - WC