Maths - Intent, Implementation and Impact statement

At Holmesdale Infant School we recognise the importance of mathematics throughout each child's every day and future life. It enables children to understand relationships and patterns in both numbers and space in the world around them. We intend to give each child the self-confidence and resilience to reach their full potential by ensuring that they have the tools to calculate fluently, reason logically, problem solve and think in abstract ways to become independent learners.

Intent

At Holmesdale Infant School, we believe mathematics is an important part of children's development throughout school, right from an early age. We intend on delivering a curriculum which:

- allows children to be a part of creative and engaging lessons that will give them a range of opportunities to be curious and explore mathematics following a mastery curriculum approach.
- gives each pupil a chance to believe in themselves as mathematicians and develop the power of resilience and perseverance when faced with mathematical challenges.
- recognises that mathematics underpins much of our daily lives and therefore is of paramount importance in order that children aspire and become successful in the next stages of their learning.
- engages all children and entitles them to the same quality of teaching and learning opportunities, striving to achieve their potential, as they belong to our school community.
- makes rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.
- provides equal opportunities for children to apply their mathematical knowledge to other subjects (cross-curricular links).
- is in line with the expectations in the National Curriculum 2014.

Implementation

Mathematics is taught as a discrete daily lesson and Mastering number 'Maths fluency' sessions are taught 4 times a week separate to

the main Maths lesson. The curriculum content has been carefully planned, reflecting expectations in the Early Years Foundation Stage (EYFS) framework and National Curriculum. Mathematical themes enable children to logically develop the knowledge and skills that they will need for the next step in their learning journey. Learning is sequenced, so that the intended curriculum for each year group builds upon what has previously been taught, and children work towards clear end points. Each new concept begins by revisiting the previous related knowledge, allowing children to retrieve what they have already learned in the earlier sequence of study, and ensure new knowledge is taught to build on prior learning. Recapping prior learning ensures that children's knowledge is embedded. This ensures the knowledge and skills become embedded in their long-term memory and can be applied in the other areas of learning. Teachers are learning partners who develop children's deeper thinking skills and ideas through skillful open-ended questioning. Our aim is that all our children become independent learners, who can apply logical reasoning, problem solving skills and the ability to think in abstract ways. Mathematics teaching and learning is not confined only to 'maths lessons', meaningful links are made across a range of subject areas to support the understanding that maths is relevant in everyday life. Children have the opportunity to transfer their knowledge and skills within provision and at home through Maths Monkey, accessing Numbots and homework. Our approach to the curriculum in Mathematics is based upon a language rich, active learning experience. We believe that children learn best if they are exposed to new concepts with hands-on practice and immersion in new technical vocabulary. Our children are taught mathematical knowledge through the support of concrete resources and pictorial representations, before moving on to a more abstract approach. They gain the right level of fluency before moving through a wide variety of reasoning and problem-solving activities. This allows them to further broaden and deepen their mathematical knowledge and demonstrate their understanding of abstract concepts.

Concrete

In the concrete or 'doing stage' children use practical equipment. These might include actual objects e.g. numicon, counting bears and counters to gain a solid understanding of mathematical concepts, making links with new learning, and developing analytical thinking for problem solving. Across school every new concept in Mathematics is taught practically and in real contexts first, to support understanding and deepen learning.

Pictorial

In the pictorial or 'seeing' stage, visual representations are used to represent problems. When children are ready they replace concrete apparatus with a pictorial representation – a drawing or picture which still provides them with a support to access their learning. This is sometimes used directly alongside the concrete resources to aid understanding. This helps children make the connection between

physical objects and abstract concepts.

Abstract

Once children are secure with the concept, they can then move into the abstract – using numbers and symbols and formal written methods, as well as developing their mental recall.

To ensure continuity and progression in the teaching of Mathematics, we use the White Rose Maths sequences of work. The scheme covers the National Curriculum objectives, breaking the learning into small steps allowing for a slower, deeper approach to the lesson sequences. This 'mastery' approach to concepts allows children to become confident and resilient mathematicians. Learning builds on previous concepts and is taught through a number of learning units which cover all the appropriate Mathematics objectives. Each concept within the units is split into a series of small steps to consolidate the children's conceptual understanding. The programme ensures an integrated approach to the National Curriculum and mathematical aims of, fluency, reasoning and problem solving.

Maths Mastery

Through the 'Mastering number' approach (NCETM - Maths HUB) our aim is to secure firm foundations in the development of good number sense for all children from Reception through to Year One and Year Two. The aim is that children will leave Key Stage One with fluency in calculation and a confidence and flexibility with number. Attention will be given to key knowledge and understanding needed in Reception classes, and progression through Key Stage One to support success in the future.

Fluency

Children have opportunities for independent practice to ensure consolidation with daily fluency sessions. When children are secure with their fluency in areas of the Mathematics curriculum – their thinking is challenged and extended through open ended, high order questioning and problem-solving activities, as well as variation in how problems and questions are presented.

Reasoning and Problem Solving

Reasoning is evident throughout all learning, children complete learning in their maths books where they have time to show how they have got to their answer. Deeper level questioning allows children to share their knowledge and gives them time to consider their own understanding. We place emphasis on reasoning and vocabulary to equip children with the tools to explain their reasoning.

Sequencing

While White Rose is the core that runs through the maths curriculum. Areas of maths are regularly revisited, and knowledge is built upon.

Modelling

In all lessons teachers ensure mathematical instruction is clear and broken down into small steps, giving children the opportunity to complete learning independently. Modelling is clear and embodied with images, resources, and real-life examples.

Retrieval Practice

Children take part in daily fluency to strengthen their memory and retrieval, end of unit learning retrieval, and demonstrating of understanding.

Impact

Children's knowledge and skills are tracked using formative and summative assessments, which align with the Early Years Foundation Stage framework and the National Curriculum. We measure the impact through tracking the progress using our progression of knowledge and skills. We measure the impact of our day-to-day maths curriculum by using the principles of assessment for learning, ask children questions, challenge their understanding with reasoning questions, marking and problem-solving tasks.
The impact of the maths curriculum will be:

- Children demonstrate a quick recall of facts and procedures.
- Children show confidence in believing that they will achieve.
- Each child achieves objectives (expected standard) for year group.
- The flexibility and fluidity to move between different contexts and representations of maths.
- The chance to develop the ability to recognise relationships and make connections in maths lessons.
- Mathematical concepts or skills are mastered when a child can show it in multiple ways, using the mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations.
- Children show a high level of pride in the presentation and understanding of their work.