Askwith Primary School

Mathematics rationale

The purpose of mathematics at Askwith Primary School is to equip all children (this includes SEND, EAL, PP and vulnerable children) with the knowledge, skills and understanding to become confident mathematical problem solvers.

"The curriculum should identify and sequence, in small steps, declarative, procedural and conditional knowledge, and plan for pupils to learn this in small steps. This will make sure pupils' so that pupils' knowledge builds steadily over time. Linked facts and methods should be sequenced to take advantage of the ways that knowing facts helps pupils to learn methods, and knowing methods helps them to learn facts. Declarative and procedural knowledge can be combined and taught as strategies for problem-solving. A well-sequenced curriculum, and systematic teaching and opportunities for practice help pupils to become proficient in mathematics. This leads to success and motivation in the subject."

(Ofsted, 2021)

All children (this includes SEND, EAL, PP and vulnerable children) are taught to think and reason mathematically, applying skills fluently and efficiently, arriving at the accurate answer in all areas of mathematics. A dialogic approach is fundamental to all areas of learning at Askwith Primary School and underpins all teaching and learning. All children discuss their learning and talk through possible solutions to given problems, applying the most efficient method. All children will be given the opportunity to deliberately practice a mathematical concept, before becoming fluent and then applying this knowledge to reason and problem solve mathematically. The class teacher always teaches the lowest 20% to ensure all children meet their endpoints and they keep up with the expected standard. Mathematics education at Askwith Primary School provides children with an understanding of the world around them and a curiosity and enjoyment of the subject. At Askwith Primary School, we are passionate about ensuring that all children receive a sequenced, knowledge rich mathematical education. This in turn ensures that all children are able to reason mathematically and solve mathematical problems. All classes have a daily diet of mathematics, which includes timed elements of mental strategies to enhance fluency.

At Askwith Primary School, we believe that all children's education begins in Early Years.

'Children develop quickly in the early years and a child's experiences between birth and age five have a major impact on their future life chances.' *(EYFS Statutory Framework, 2021)*

Our curriculum is aligned to the Early Years Framework and shows the sequential steps, granular, of essential knowledge acquired from Reception to Year 6. We take guidance from White Rose Maths and adapt this to meet the needs of the children at Askwith Primary School. It is crucial that children in the Early Years and key stage one become fluent with mathematical facts and there is a focus on this for children in the early mathematical education. As they children move through into lower key stage two it is important that they

become fluent in multiplication tables and they have daily practise to ensure this. We have a determined approach that drives us to ensure that all children meet the expected standard in mathematics and have the knowledge required for secondary school. Our mathematics curriculum allows children to develop their cultural capital. Purposeful and natural links to **Fundamental British Values, SMSC and global themes** are an integral part of our curriculum and are threaded through the mathematics curriculum.

Why this? Why now?

Each unit of mathematics is taught discretely and in Year 1 to Year 6 all classes teach in the sequence of the White Rose Maths scheme, ensuring full coverage of all areas of mathematics:

- Number and place value
- Calculation
    - Addition and subtraction
    - Multiplication and division
- Fractions
- Measures
- Geometry
- Position and direction
- Statistics
- Ratio and proportion (Year 6 only)
- Algebra (Year 6 only)

We believe that it is important to teach number and place value in September in all classes, as a secure knowledge of number and place value underpins all areas of mathematics.

Throughout all units of knowledge in mathematics, each child has a personalised balance of practice to enable fluency, reasoning and problem solving with each mathematical concept. The balance of this will differ for each child, depending on their needs. When teaching reasoning and problem solving, it is important for teachers to distinguish between questions that rely on the method and where the method is being deliberately practiced and questions where which method to use is unknown to the child. Children are taught to be able to identify which strategies they will need to tackle different types of problems, including the associated vocabulary. Not all lessons contain new content, there will be time for deliberate practice and fluency of previously acquired knowledge.

Knowledge in mathematics (including working mathematically)

The mathematics curriculum is one in which substantive knowledge and skills merge in a way that does not happen in any other subject area. The taught knowledge in mathematics is substantive rather than disciplinary and children will be taught to make links across different mathematical components to build this substantive knowledge in their long-term memory. Children are taught what they need to know, the declarative knowledge, and how to use what they know, the procedural knowledge. Learning journeys in mathematics specifically reference connected knowledge from other areas of the mathematics curriculum, providing

children the opportunities to interleave their mathematical knowledge and make purposeful and meaningful links.

SMSC in Mathematics

Spiritual, moral, social and cultural attributes are developed in our pupils throughout the mathematics curriculum:

Throughout mathematics, children develop **socially** through reasoning and problem solving questions where they have to work together to discuss the most efficient methods to answer questions and to explore alternative methods together. Through this dialogic approach, children develop socially and they begin to feel a sense of achievement due to the effort they have put in this in turn builds their confidence and self-belief in their mathematical ability.

Spiritual education in mathematics provides opportunities to make sense of the world around them. They develop deep thinking and an ability to question the way the world around them works. Children are encouraged to see patterns, sequences and scales in the world around them and they use mathematics as a way to explore the world fully.

Moral education is a thread that runs throughout mathematics. All learners are provided with opportunities to apply their mathematics knowledge in 'real life' contexts to reason and solve problems. The logical aspects of this types of problem solving strongly links to right and wrong decisions in mathematics.

Cultural education in mathematics centres around the rich history and cultural context in which mathematics was first discovered or use. The ancient civilisations relied heavily on the use of mathematics.

Enhancements in Mathematics

At Askwith School we have a carefully planned rolling programme of enhancements to ensure that all year groups are exposed to a wide range of opportunities that enhance children's knowledge and cultural capital in all subjects. For example, visitors are invited in to talk to children so that children can have future aspirations. As a school, we have a conscious effort to break down the gender stereotypes in the STEM subjects and ensure there is a balance of male and female visitors to promote gender equality in careers using mathematics.

Mathematics improvement priorities

Intent	**Implementation**
Monitor the effectiveness of teacher and teaching assistant interactions in maths to ensure knowledge is being built and deepened across all elements of the mathematics curriculum	• Conduct teacher and teaching assistant questionnaire to assess confidence in teaching and supporting mathematics (including subject knowledge)

	• Arrange CPD/training for any areas based on staff voice questionnaire • Teaching assistant lesson studies to observe one another and give feedback (increase TA confidence and update CPD) • Drop-ins to focus on pupil voice, in particular how conversations with their teacher help to deepen their understanding and make links across different areas of mathematics • Enhance transition arrangements so interventions can take place from week 1 in September of 2025

Reviewed: September 2024