



Mathematics Curriculum Statement

Our CLEAR Curriculum Drivers:



Curriculum Intentions:

At Foxhills, we aim for our children to become proficient mathematicians. A proficient mathematician will be able to apply a secure understanding of number fluency and procedure, solve problems, recall facts and reason using the crucial knowledge they have acquired through our mathematics curriculum. Crucial knowledge refers to the knowledge the school has identified as being the most crucial content that all children must acquire to ensure they meet the milestones for the end of Early Years Foundation Stage and Key Stage One in mathematics.

Our mathematical concepts are:

- Conceptual understanding
- Procedural fluency
- Problem solving
- Reasoning

At Foxhills, the characteristics of an effective mathematical learner are:

- An ability to use a wide range of mathematical vocabulary.
- An ability to make connections within mathematics.
- Procedural recall, accuracy and fluency in familiar routines.
- An ability to interpret and use representations.
- A range of mathematical knowledge, which can be used in different ways.
- Strategies for problem solving which are personal to the child.
- An ability to reason using mathematical knowledge to generalise and make sense of solutions.
- The ability to embrace the value of learning from mistakes.
- An appreciation of the purpose and usefulness of mathematics in everyday life.

Curriculum Implementation

How is the maths curriculum organised?

We aspire for every child to get better at mathematics during their time at Foxhills. Getting better comes from regularly revisiting knowledge and applying it in new or different contexts because it aids children in connecting new information to an existing schema. This strengthens children's memory. Acquiring the characteristics of effective learning will also support our children at getting better at mathematics. Our mathematics curriculum is organised to ensure children have the opportunity to repeat, practise, recall and retrieve key knowledge in different ways. Concepts are taught in a progressive sequence; with each concept building on what has been taught before.

How does learning progress in the Maths curriculum?

The maths curriculum begins with the concept of conceptual understanding and procedural fluency. This is because children of this age and developmental stage are exposed to number in the wider world and started to learn to count from an early age. Adults support children to understand what these numbers mean by understanding all numbers have meaning, each number has a value and they increase in value through the number system. As the Autumn term continues the children are encouraged to explore vocabulary such as fewer (less), more, total, bigger and smaller through revisiting their counting skills and applying their understanding of 1:1 correspondence. During the spring term, children continue to look at procedural fluency and conceptual understanding to allow them to make links between their number understanding and their comparative language. As children mark making has developed from the Autumn term, they are encouraged to record their problem solving through pictures and their results through mark making. As the children's number knowledge develops, the children will be exposed to addition and subtraction, using concrete resources and having appropriate language modelled. Once the children have secure understanding of number, they will investigate shape, measure and space. They are encouraged to use language to name and describe objects in their everyday lives. At this point of the year, the children have secured the knowledge and language they require to be able to problem

solve and reason about mathematics. Throughout the Summer term, the children will revisit number, adding and subtraction before being encouraged to use their understanding to manipulate numbers to find half or doubles, solve problems and reason to explain their understanding in preparation for year one. Due to being settled into school, the children will look at their routine and describe this using words associated with time.

As children move into Year one, they begin by revisiting, deepening and extending their understanding of number through procedural fluency. This builds on the EYFS by children articulating that every number has a value and developing an understanding of the value within a two digit number. Once children have gained this knowledge they are provided opportunities to apply their comparative language to compare numbers. Throughout this the children are encouraged to make their own recordings through pictures and numerals. As we progress through the Autumn term, the children are taught addition and subtraction and explore the connection between the two. During Spring 1, the children continue to look at procedural fluency and conceptual understanding within the context of multiplication, division and fractions to manipulate numbers. In addition to this the children will build on their position and direction language to describe a direction, position or movement of a shape. During the later part of Spring 2, the children will have the opportunity to apply their understanding of number to explore concepts of measure. Throughout this, the children will practically investigate different methods of measuring using unit and non-standard unit measurements. They will draw on their vocabulary from EYFS and build on their ability to record this. In the summer term, the children now have an understanding of time in minutes and hours according to the daily timetable so they explore this concept developing their knowledge from EYFS. Finally the children will revisit all their knowledge gained allow them to apply their understanding to solve problems and reason about mathematics.

As the children progress into Year two, they will be revisiting procedural fluency and conceptual understanding through place value of number. The children will develop their ability to compare numbers by using symbols and reason why. The children will be encouraged to build their mental fluency and number knowledge throughout this unit. During Autumn 2, the children will be able to manipulate numbers through addition and subtraction. They will revisit the relationship between them both before using this knowledge to solve missing number problems and checking their own work. As the sequence continues, the children will build their fluency and conceptual understanding of multiplication and division using the appropriate signs. The children will then be encouraged to make connections to find fractions of shapes and quantities. During Spring 2, the children revisit measure using standard units. They are given the opportunity to apply their understanding of the four operations to solve problems involving measure. Following this the children explore the concept of time as a measurement and understand the intervals of time. Finally, throughout year 2, the children are given the opportunity to apply all their knowledge to solve problem and reason mathematically explain how they know, this is focused upon during the summer term.

How are maths tasks designed?

Proficiency in mathematics comes from acquiring knowledge, conceptual vocabulary and the characteristics of effective learning. Knowledge, vocabulary and the characteristics of effective learning inform all task design. Within each lesson, knowledge and associated vocabulary are selected for emphasis and thoroughness. Lessons are never in isolation. Learning journeys are used to ensure all lessons fit within a sequence, so teachers know what has gone before and what comes next. Learning journeys enable teachers to purposefully position knowledge to build on previous and subsequent teaching. Our learning

journeys support children in acquiring, consolidating and using knowledge in different ways. This is facilitated through '*Learn, practice and apply*'. These approaches enable children to repeat crucial content across a sequence of lessons at their own pace.

Retrieval tasks are used to develop and strengthen children's memory. Rocket challenges are low stake routine tasks which force children to recall previously learned concepts and reconstruct information every time it is revisited.

Within maths, we use the concrete, pictorial, abstract route meaning all concepts are introduced in the concrete form before moving into the pictorial then finally the abstract. This allows children to manipulate and gain a physical understanding initially. These resources could include numicon, dienes, money, counters etc. Children can then use pictorial representations to deepen their learning and show their understanding. Lastly, children work in the abstract concept just with numbers. Throughout every concept children are given the opportunity to show their understanding and deepen their thinking through problem solving or a reasoning task such as prove it, convince me, am I right, true or false, how do you know etc.

What does Maths look like across the curriculum?

Our 'learn, practice and apply' approach to task design facilitates children's capacity to learn and articulate their knowledge across the curriculum and facilitates pupils' ability to repeat crucial knowledge and revisit it in other contexts to deepen their understanding. Children are shown many representations. Systematic repetition of the most crucial content is the rationale for learning journey planning. Our research has supported us in understanding that repetition and retrieval are very effective in getting information into children's long-term memories. At Foxhills, we prioritise knowledge and understanding of number and place value as we recognise that this precedes reasoning and problem solving. The children can then use this knowledge in other areas of the curriculum for example recording data in geography or science and problem solving in design and technology.

Which skills or knowledge can children not access the rest of the curriculum without?

Children's place value ability and understanding can be a huge barrier to children mathematical learning and can inhibit them progressing and gaining more knowledge. Therefore, we begin with place value and number in every year group. This is progressive but always begins with revisiting the previous years knowledge, making sure the children make connections and build on previous learning whilst gaining new knowledge, skills and securing a understanding to be able to use this knowledge throughout other concepts. Children will not be able to access the other concepts without securing this essential foundation of knowledge.

Provision for SEND and Greater Depth

What are the typical barriers for children in maths? How will these be overcome?

Quality first teaching during maths lessons enables all children, regardless of their background or ability to develop as a logical and resilient learners. The concepts 'procedural fluency' and 'conceptual understanding' in our maths curriculum, is deliberately positioned so that the children have this to make connections with further concepts. It is following this point the children can reason and problem solve. Throughout all lessons the culture of mistakes is promoted as they are seen as opportunities.

Effective interventions with some pupils with SEND are required in maths to support confidence, memory, processing, speech and language and fine motor. Our teachers are flexible and quick to make changes if something is not working for a particular child through our cut-away teaching in which misconceptions are planned for and pupils receive a higher level of scaffolding in their task design. If these strategies haven't worked in the lesson, we focus on keeping children up so revisiting learning the same afternoon or prior to next lesson to ensure the children remain on the same learning journey.

Opportunities for multisensory approaches, spaced practice and retrieval are carefully planned into these journeys, so that pupils with SEND are both supported and challenged appropriately. Once children have grasped a concept, independence is promoted, in order for children to experience success and to show that they can master the small steps, within their personalised learning journey.

The provision for pupils with SEND is entirely personalised. Where deemed in the best interests of the child, teachers work to remove barriers to accessing our Maths curriculum, in order to ensure equality and to support children in applying their knowledge in different ways, in order to meet key milestones.

Children are encouraged to be independent through the use of resources to support their learning to solve problems depending on the unit of work. This is encouraged through the concrete section of the concrete, pictorial and abstract process.

However, where appropriate, some pupils are taught maths through pre-learning journeys. These are tailored to the child's individual needs and are carefully planned in a way that enables children to repeat crucial knowledge at their stage of development.

Where language is a problem some children have a pre-teach session which allows them to have exposure before the lesson to gain some understanding or revisit a concept before the lesson, so they have retrieved their knowledge and skills. In these sessions children also hear vocabulary which can be unpicked prior to the lesson to ensure clarity.

What are the greater concepts children can learn in maths? How can they be challenged?

Our ambitious Maths curriculum also allows for teachers to provide personalised provision for children working at greater depth. Cut-away teaching and teaching through workshops enables teachers to work alongside greater depth mathematicians to challenge them further. By working closely alongside our greater depth pupils our teachers are creating a culture where problem solving, and reasoning is appreciated. This therefore inspires our children to strive for more challenges. Giving the greater depth problems that not only use what they are learning about but also what has previously been taught and asking them to prove their understanding or how they know enables them to have greater ownership over their maths learning. This encourages them to make choices about the most efficient and effective method to choose.

Curriculum Impact

A child who has acquired the crucial knowledge and developed a secure understanding of the maths curriculum at Foxhills will be able to apply this knowledge in different ways to multiple areas of the curriculum and in real life situations. The children will be confident at independently solving problems using their resilience and perservance to keep going until they reach the answer in which they feel accomplished and proud of their maths understanding. To be proficient in maths means that the children are able to make connections to solve problems and reason about their answer which will show their

understanding on a deeper level. Children are therefore able to become confident and resilient lifelong learners, who are equipped with the essential knowledge and skills in order to be successful in the future.

Foxhills Infant School

