

## Maths Policy – Intent

Mathematics is a creative discipline essential for everyday life. It is a whole network of concepts and relationships, which provide a way of viewing and making sense of the world and links into a variety of fields such as Science and Technology. It is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real life problems. Our aim is to spark a curiosity in our children in this area while also developing fluency, reasoning and problem solving skills. We want to foster a love and positive attitude towards mathematics and an awareness of the fascination of the subject that develops a range of key skills needed for life. Our hope is to inspire our children to see the value and enjoyment Maths can bring that will potentially take some of them into roles in Maths, Science, Technology or Engineering in their adult lives.

We believe that each child should have the opportunity to develop key Mathematical skills. This will enable them to become fluent and develop a deep conceptual understanding that allows children to recall and apply their knowledge. Our aim is to structure learning opportunities to allow this knowledge to be acquired and practised repeatedly and systematically so that all pupils can demonstrate this with increasing rapidity, accuracy, competency and confidence over time. We intend to support and encourage the ability to reason mathematically as a key area of our Maths curriculum to enable our pupils to develop the skills they need to think and communicate intellectually. Research shows that it is vital to provide these opportunities and encourage children to think at a deeper level. This enables them to develop their own lines of enquiry, justify and prove their thinking and enhance understanding of a concept at an age appropriate level. By sparking children's curiosity, they will also engage more with the subject. The ability to problem solve is another key aspect of our curriculum. Maths is a subject that can provide these opportunities in abundance in a range of forms including across the curriculum and in real life. We offer a wide range of problem solving experiences to our children. The problems they solve are key to developing both their Mathematical and life skills such as systematic logical thinking, perseverance, resilience, experimentation, the ability to make connections and break down a problem when required.

## Implementation

Throughout the school we use the White Rose Hub as a basis for our Maths Curriculum, however we have also altered the order of teaching for some of the concepts/domains and chosen or adapted the methods taught based on the knowledge of our children and this is checked and adapted yearly when needed. All children will have access to a mathematical activity, continuous provision station or taught lesson every day. Each child is taught to use activity appropriate apparatus including Numicon, Dienes, hundred squares, bead strings, number lines, scales, rulers, etc. to support and demonstrate their acquisition, development and application of Mathematical skills and understanding. We focus on the idea of moving through a structure of concrete, pictorial and then abstract representations in Maths as research and our own observations show that this

allows children to develop a deep and sustainable understanding of a concept/domain taught. These strategies are used throughout all stages of a child's Mathematical journey sometimes in isolation and other times in conjunction with each other depending how the children learn best and what they need as a process to acquire and apply their knowledge and understanding. As children become more confident they are encouraged to build their independence as a learner and select their own preferences for methods and strategies from the ones they are taught. They would then ultimately move into considering which of these are most appropriate and why. Children revisit and practise taught skills and concepts during the year using independent activities and continuous provision. Cross concept, links and application are planned for whenever appropriate as well as cross-curricular learning opportunities to further embed and consolidate skills.

### Early Years Foundation Stage

Our EYFS curriculum has been devised using the Early Year Foundation Stage Development Matters 2020, White Rose Hub and the NCETM Number blocks resources.

During their time in the EYFS children will have a keen focus on number, this includes rote and touch counting, counting out amounts, comparing groups of objects and using the correct language, recognising and ordering numbers, practical addition and subtraction, sharing, halving and doubling.

**To support wider mathematics children will also engage in problem solving activities that include** the other areas of Mathematic including naming and talking about shapes, using positional language, comparing and using the language of early measure including height, weight, capacity, patterns, money and time.

The focus of the curriculum in the EYFS is on the development of key skills and children's mathematical vocabulary to ensure that children are both 'school ready' and have the ability to solve simple problems with the support of a teacher.

At the end of the EYFS children are assessed using the EYFS profile 2020. This is split into two areas Number and Numerical Pattern these are assessed as below:

**Number:** Children should have a deep understanding of number to 10, including the composition of each number. Subitise (recognise quantities without counting) up to 5, automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

**Numerical Pattern:** Verbally count beyond 20, recognising the pattern of the counting system. Compare quantities up to 10 in different contexts, recognising when one context is greater

than, less than or the same as the other quantity. Explore and represent patterns within numbers up to 10, including even and odds, double facts and how quantities can be distributed equally.

In EYFS try to teach using a practical play based approach which gives the children context for their learning, as we are topic based this can be around a specific book e.g. 'Can you help Supertato to count all of the veggies to make sure no-one has gone missing?' Or from a character such as buying drainpipes from the hardware store to build Incey Wincey a new home? All EYFS classrooms have a number continuous provision station, where children have access to objects, Numicon, uni-fix cubes, numerals and a mathematical challenge which is placed in that area each fortnight. Children also have an extra challenge which covers one of the areas of Shape, Space and Measure. When outdoors children are able to access continuous provision in the form of a 'maths shed.' This includes opportunities for all areas of Mathematics.

In Reception children have a daily carpet session which is normally differentiated to ensure those children that need a smaller group approach have access to this. Children then follow a 'carousel' of learning with four stations. On four out of the five days children will have a taught activity with a teacher or teaching assistant on the other day the children have the opportunity to apply their skills independently or revisit prior learning to ensure that it is embedded. On four out of the five days children also have access to an outdoor activity with a teacher or TA that they complete on a rota.

In Nursery, the family group leader models counting children every day encouraging all of the children to join in. During the first half term children are taught how to use the nursery environment including the number station and other Mathematical continuous provision. Children always have two activities in a week with a Maths focus these may be indoor or outdoor, this will include a small group introduction. Starting in the Spring Term the children will have two carpet sessions a week, which again will be differentiated to support children who need either a smaller group approach or those children who need specific language work. During the end of the day children will also sing a variety of number songs supporting them to represent numbers using their fingers and start to understanding one more and one less.

### Key Stage 1

In Key Stage One, our curriculum has been devised using the National Curriculum and White Rose Hub. The Key Stage One curriculum is split into the following domains:-

*Year One: Number – Number and Place Value, Number – Addition and Subtraction, Number Multiplication and Division, Number Fractions, Measurement, Geometry – Properties of Shapes and Geometry – Position and Direction.*

*Year Two: Number – Number and Place Value, Number – Addition and Subtraction, Number Multiplication and Division, Number Fractions, Measurement, Geometry – Properties of Shapes, Geometry – Position and Direction and Statistics*

*The focus of the curriculum in Key Stage One is the development of confidence and fluency when working mentally with whole numbers, for counting and place value. By the end of Year Two children will know their number bonds to 20 and precisely use and understand place value applying this in different ways. Children are exposed to further numerals and numbers in their word forms. They develop confidence and mental fluency when working with the four operations and use a range of practical resources to support their learning. When working with shapes children develop the ability to recognise, describe, draw, sort and compare different shapes using appropriate vocabulary. In measures, they develop the ability to describe and compare different quantities for length, mass, capacity/volume, time and money.*

*Our approaches for teaching include a balance of teacher input and pupil activities using whole class teaching, guided group work and independent activities that is carried out in groups, pairs or as individuals. Lessons in Key Stage One mostly take the form of a whole class lesson which last one hour each day, however when staff feel it is appropriate to do so they may plan in shorter more focused lessons working with half the class or a small group of pupils throughout the day. These timetabling decisions are made as part of a year group team planning meeting and always takes into the consideration the needs of the pupils to maximise the learning opportunities of our children. Consolidation activities may also be carried out but for a shorter period during a week. There is an expectation that the majority of pupils will access the same activities and learning opportunities at the same pace. However, those who require it receive additional scaffolding and support to access the learning. Anyone not yet sufficiently fluent is provided with additional opportunities to practise and consolidate before moving on. Pupils who grasp concepts rapidly are given further extension activities of a rich broad nature to apply the use of the same skills or body of knowledge at a deeper level.*

*Lessons are typically structured in this way: -*

- Previous learning is reviewed at the start of a lesson.*
- Learning is then set in context*
- Instruction from a Teacher or Teaching Assistant is provided where well-structured information about the learning is given.*
- Demonstration from an adult will then follow where teaching staff will show, describe, model use of apparatus and other resources such as visuals.*
- Alongside the demonstration aspect is time to explain and illustrate where staff will provide accurate, precise and well-paced explanations to the children. The*

demonstration and explanation aspects may take place as a whole class, small group or 1-1 depending on the needs of the children.

- There is the opportunity for questioning and discussion throughout a lesson that may be teacher to children/child or peer to peer.
- Children will be given the chance to practise and consolidate what they have learnt moving on independently when they are ready to do so. This practise and consolidation time could be as individuals, pairs or small groups.
- There is time throughout the lesson to reflect and evaluate where errors or misconceptions are identified and positively used as a teaching point.
- At the end of the lesson, there is then time to summarise what has been learnt and focus on next steps.

### SENDi

Whenever it is appropriate, our SENDi pupils will access the curriculum for their year group for Maths. Children may still need further adaptations to enable them to access this learning such as activity or instructional chunking, additional prompts, support or scaffolds. Through formal and informal assessments, we identify the needs of all children and use appropriate organisational strategies, resources and multi-sensory teaching methods to cater for these needs. For children with severe complex needs additional support is provided through their EHCP to accelerate their progress so that they begin to narrow the gap and move towards age-related expectations. Additional support staff are made available where necessary to support groups or individual children, working collaboratively with the class teacher. We also provide resources and ICT software that reflect the experiences and needs of all our pupils. Suitable resources and learning environments will be available to enable children with disabilities access to the learning required. For our most complex SENDi children, teachers will create a bespoke sequence of teaching to cater for the individual needs of those pupils. They will ensure that Maths lessons/activities are sequential and build on prior learning, suit the learning styles of the individual child and enable a sufficient amount of practise and revisiting so that learning embeds over time. Planning sets a high expectation and provides relevant learning opportunities for the achievement of all pupils. Where applicable children's APDR will also incorporate suitable objectives from the AfL for Mathematics.

### Parental Involvement

We recognise and value the interest, support and involvement of the parents in their children's mathematical understanding, and keep them up to date with any development in this area. We actively encourage parents to help their children in learning mathematical facts and skills, through information sharing activities such as curriculum evenings, information on our school

website and consultation evenings. Pupils can access Maths work on the school website including appropriate online activities and games and printable activities so that parents can be involved in helping pupils to consolidate concepts and further develop mathematical vocabulary and understanding.

### What Can Parents do to Promote Maths at Home?

- Attend the school's Maths workshops and Learn2gether sessions, these will include lots of ideas and activities that you can use at home!
- Take a positive view of Maths in front of your child even if it is not a preferred subject of yours.
- Encourage a 'Growth Mindset' approach if children are finding Maths a little challenging, phrases such as "It is okay you just can't do it – Yet." And "Let's try again." Can be useful when approaching Maths activities.
- Use Maths talk every day – how many...? Number names, clocks, language relating to time, measures language – heavy, heavier, light, lighter, long, longest, shorter, shortest etc.
- Sing songs and rhymes that link into Maths these could be counting songs, shape songs or song to remember multiplication tables.
- Use everyday objects and opportunities to reinforce counting, addition and subtraction, doubles and halving. E.g. if I give you five more sweets how many would you have? If we halved the number of chicken nuggets on your plate, what would you have left?
- Sort objects into sets or create your own sequences.
- Play memory games. These could be generic memory games such as pairs, Kim's game, repeating a simple sequence of actions they have been shown, remembering a verbal sentence or have a link to maths such as remembering a number sequence or a pattern of shapes.
- Play Maths games together. Jigsaws are great for developing spatial awareness. Games such as snakes and ladders can be used to practise work around numbers and counting while games such as connect four and draughts can be useful to develop logical thinking.
- Look out for and discuss 2D and 3D shapes in the environment. Talk about the names of these shapes and try to describe them. Think about comparing some of these shapes – how are they the same/different?
- Practise the days of the week and months of the year with your child. Tell them what time it is when you do routine things in the day and refer where possible to the time on a clock e.g. "Oh its 8 o'clock now time for breakfast." Etc. Use language relating to time

in your discussions with the children – afternoon, morning, night, before after, later, first, then, next etc.

- When practising Maths at home ensure you know and understand the methods children are currently using to solve different types of calculations. Look for information on the school website in the Maths area or speak to your child's teacher if you need more support with this.
- Share out foods where possible modelling sharing equally – one for you, one for me etc. If cutting up pizzas or cakes refer to what you have cut it into e.g. "I have cut it into half." or "Half for me and half for you." etc.
- Use open questions to develop understanding and encourage children to verbalise their ideas e.g. "why did you...?" "How will you work that out?" "Why do you think that?" etc.
- Have fun with it and be creative – there are opportunities for Maths all around us in our daily lives.
- Remember little and often can be the best approach so that children and yourselves do not feel overwhelmed.

#### Anticipated Impact

- Children will have a life-long love of learning and enthusiasm for mathematics.
- By teaching the children a range of strategies when approaching problem-solving activities, they will have a high level of perseverance and resilience when faced with challenges.
- By teaching concepts using real-life situations children will be able to apply their knowledge across the curriculum and in real life situations e.g. when shopping.
- At the end of each year group and key stage children will have the skills required to transition smoothly to their next stage in schooling.
- Children will be able to show their learning of key concepts using concrete, pictorial and abstract methods.
- Children will achieve to the best of their ability with all children making at least expected progress especially those with SENDi and disadvantaged.
- End of Key Stage statutory returns show that children in our school are in line with national for the expected standard and greater depth in Key Stage One.