QEGSMAT

St. John's CE Primary School
Wetley Rocks

# Mathematics
# Intent, Implementation, Impact.

***"Shine like the star you are."***

*"You are the light of the world. A town built on a hill cannot be hidden.*
*15 Neither do people light a lamp and put it under a bowl, instead they put it on its stand, and it gives light to everyone in the house. In the same way, let your light shine before others, that they may see your good deeds and glorify your Father in heaven."*
***Matthew 5:14-16***

## Our Values

***S*trength:** *have the strength to stand up for what is right. Be a courageous advocate.*
***H*ope:** *to be people of hope. Have hope when times are dark and difficult. Keep positive and be resilient – there is light at the end of the tunnel.*
***I*ndividuality:** *embrace and celebrate our differences. God made us all unique and this is a very special thing.*
***N*uture:** *cherish, care for, encourage and protect everything in God's world - including yourself.*
***E*xcel:** *fulfil your God given potential; be the best you can be. Shine like the star you are.*

## Mathematics Intent

Mathematics at St John's is a creative and highly-interconnected subject. All Mathematics teaching is linked to the values of our trust, school and to the three statutory aims of the National Curriculum: fluency, reasoning and problem solving. Our intent is for all children to become fluent mathematicians, who are able to confidently recall and apply mathematical knowledge; make rich connections across a range of mathematical concepts; and demonstrate conceptual understanding. We aim for all of our children to be proficient users of mathematical language, which will support them in their mathematical reasoning in different contexts and also in understanding what is asked of them. Our ambition is for children to become competent problem solvers, through applying their mathematical knowledge to wide range of problems, in maths lessons, other subjects and in 'real life'.

To tie in with this, all Mathematics teaching is linked to the values of our school. We want to ensure that our children are prepared for the modern world and develop values that help them to be responsible, supportive and collaborative citizens of the future able to flourish in whichever environment or profession they choose.

**Strength:** To know how to use strategies and methods taught to solve problems and to be confident when reasoning to use the language of maths to reason their ideas with, or at times, against those presented to them. We want to give children the skills and confidence to become competent and effective problem-solvers to set them up for their future both in secondary school and in life.

**Hope:** To have resilience not just within Maths lessons but all timetabled lessons. To persevere to complete a task and to try all options to complete the work set. By providing the children with a high-quality maths education, they will be able to apply their skills in a variety of subjects across the whole-curriculum. We want children to develop positive mathematical habits and perceptions that help them to achieve throughout their life.

**Individuality:** To demonstrate their own individual flair and confidence in their abilities, communication and potential. To believe in their own ideas but also to recognise the individuality in others- that not all people must follow the same path. Our children will also accept that the views of others will often help them to build their own individual path.

**Nurture:** Mathematics isn't always a subject for individual work- teamwork and collaborative discussion is essential to building reasoning and making connections. We want to foster an environment of polite discussion, where ideas can be debated and discussed and children are exposed to solutions being sought collaboratively and in well—modelled, teacher-led discussions. We want our children to be supportive and receptive to the ideas of others and to sensitively handle ideas that contrast with their own. want to develop children who know how to protect everyone in God's world.

**Excel:** At St John's Primary School, our maths curriculum is ambitious and engaging and provides the opportunity for all children, including disadvantaged pupils and those with SEND, to access reasoning and problem solving to develop their learning at their level of attainment. To ensure all pupils excel, teaching and learning is ambitious, with appropriate vocabulary, strategies and methods modelled by our teaching staff. This will enable our children to progress to experience success with the mathematics.

## Implementation

In Mathematics, we implement an inclusive curriculum that meets the statutory requirements of the National Curriculum. We use ***White Rose Maths*** as a spine in KS1 and KS2 with a long-term plan that also has links to teaching content, guidance and materials to ensure that our teachers have access to high quality, subject association approved resources. Our EYFS year groups work from the ***Development Matters***, which are included in our long-term plan. Each year group's objectives are mapped from age 3-4 to Year 6, with language and associated examples of reasoning provided for teachers to support the development of pupils.

***White Rose Maths*** has been chosen because it covers the whole curriculum and plots a coherent course through curriculum content, providing a library of highly-visual lesson resources, and guidance on physical resource use, to allow the structure behind the mathematics to be exposed. There are clear examples of vocabulary in context and stem sentences to aid both our teaching staff and pupils. Maths is timetabled for a teacher led session in EYFS and then this is then fed into continuous provision and group activities for the remainder of the week. There is also a daily ***Number Sense*** session to support the development of number understanding. Maths is timetabled for 5hrs per week in KS1 and KS2. The retention of key times tables and associated division facts is aided by each child from Y2-upwards having access to ***Times Tables Rockstars*** to hone fluency of recall but, most importantly, by the teaching of times tables facts explicitly in the classroom being embedded in the long-term curriculum plan.

At the beginning of each Maths lesson, children complete a prior learning retrieval activity to give them the hook to strengthen retention of knowledge. If a pathway is not regularly walked, it will not become developed and secure. A series of lessons are planned, with clear learning objectives and success criteria, to develop fluency, reasoning and problem solving and the use of subject-specific vocabulary. Children are encouraged to physically represent mathematical concepts using concrete resources, pictorial (models and images) to demonstrate and visualise abstract ideas, alongside numbers and symbols.

Concrete - Examples include structural apparatus such as cubes, counters, base10, 3D shapes or weighing scales as well as contextual objects such as teddies or coins for counting or sorting.
Pictorial - Examples include children's own mark-making and simple drawings, place value grids, number lines and diagrams.
Abstract - Examples include young children's emergent graphics, early number formation, number sentences and written expanded methods.

Fluency is a fundamental aspect of mathematics, ensuring that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately. A fluent child in maths isn't shown by a child being able to merely recall facts e.*g. 3 x 4 = 12* but by our children being able to use key facts to reason what might not yet be known *e.g. using 3 x 4 = 12 to find 30 x 4, 30 x 40 etc*.

Children become confident in the two types of fluency:

Conceptual fluency: For example, exploring the five strands of place value, (counting, recognition of cardinal numbers, knowing what each digit in a number represents, understanding our base-10 structure and exchanging), what an equivalent fraction is and identifying key features of different representations of data. Conceptual fluency requires our children to understand these ideas and to recognise them presented in different ways.
Procedural fluency: For example, +- x ÷ calculation methods linked to whole numbers, fractions and decimals and exploring step-by-step mental and written methods. Procedural fluency takes what has been learned and slowly expands upon it e.g. 3 x 2 = 6, 3 x 20 = 60, 3 x ? = 600.

Children are given regular opportunities to recall known facts, develop number sense, know why they are doing what they are doing and know when it is appropriate and efficient to choose different methods and will apply skills to multiple contexts e.g. multiplying and dividing by 10 to convert units of measurements.

Reasoning and problem solving is planned and interwoven into the mathematics curriculum and can be delivered within a session or activity or as a stand-alone activity or lesson following fluency work. Reasoning questions are explicitly taught and modelled through the use of discussion, maths partner talk, manipulatives, written words using 'stem sentences' and teacher-led, worked examples. We also believe that problem solving doesn't just happen by chance so this too is explicitly taught with a teacher commentary throughout to model the reasoning and problem solving taking place to the whole class. Cross-curricular learning is a vital driver of mathematical learning objectives and key cross-over moments are identified by

teaching staff to ensure that children are able to apply mathematical application in other areas of the curriculum.

## Impact

Our children will be fluent and confident mathematicians who enjoy the subject and are curious about their learning. Our children will use the language of mathematics appropriately and in the right contexts when reasoning, displaying a confidence with its use that has been supported by consistency in teaching across the school. They will be enthusiastic, resilient and inquisitive problem-solvers, able to tackle tasks in systematic ways when required alongside recognising the need for trial and improvement. Our children understand that a failure to find the solution immediately presents a learning opportunity rather than an insurmountable obstacle. Our children interact with each other, and our staff, in a respectful, nurturing manner when questioning problems or ways of working, and will be able to act promptly and calmly upon feedback received. Our children will perform consistently well in Mathematics and are well prepared for the next stage in their education.