



# Mathematics Mastery

## John of Gaunt Infant and Nursey School

### Our Approach to Mathematics

Our vision is for every child to enjoy and succeed in mathematics regardless of background or any barriers they may have. We believe that our 'abilities' are never fixed or innate, but can be developed through practice, support, dedication and hard work. We nurture a 'growth mind-set' at our school. John of Gaunt uses the Mathematics Mastery programme. We started this programme in September 2020 and launched it in Reception, Year 1 and Year 2 at that time.

#### Purpose of study:

Mathematics teaches how to make sense of the world around us through developing a child's ability to develop fluency with mathematical skills, to reason and solve problems. It enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives.

#### Aims and objectives:

- To promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion.
- To understand the importance of mathematical skills in everyday life.
- To ensure all pupils have the potential to succeed when teaching using a mastery approach.
- To develop logical thinking and reasoning skills through a natural curiosity and investigative approach, whilst showing resilience through the learning 'journey'.
- To promote confidence and competence so that the children are 'proud to shine' about their achievements.

- To develop a thorough knowledge and understanding of numbers and the number system.
- To develop a thorough knowledge of, and be able to manipulate number to show depth of understanding.
- To develop the ability to solve problems through decision-making and reasoning in a range of contexts.
- To explore features of shape and space, and develop measuring skills in a range of contexts.
- To provide children with a deep and meaningful understanding of mathematics.
- To ensure pupils are equipped with the necessary calculation skills for their age.
- To ensure that teaching allows mathematics understanding to be sustained.

### **We support these aims and objectives by...**

The school uses a variety of teaching and learning styles in our daily mathematics lessons. Our principle aim is to develop a love for maths, deepen children's knowledge, skills and understanding. The lessons have a high proportion of whole class and group-direct teaching. Children are taught in their peer, mixed ability groups and teachers ensure that children are given the correct amount of support or challenge to ensure that children are progressing.

The lessons in Key stage 1 have six parts – Do now, New learning, Talk task, Develop learning, Independent task and Plenary (with Transitions in between). In Reception we use the child-initiated model – Do now / Fluency first, New Learning, Talk Task / Let's explore – Develop learning – Child-initiated play.

In addition to the daily maths lesson, a short session called a 'Maths Meeting' is carried out at least three times a week the key purpose is to develop fluency, confidence and number sense with the skills and understanding for each year group.

During maths lessons we encourage children to ask as well as answer mathematical questions developing their language and communication by using accurate vocabulary and full sentences and their reasoning skills. They use a wide range of resources such as number lines, hundred squares, digit cards and small apparatus to support their fluent manipulation of

mathematical concepts. Teachers use ICT in mathematics lessons where it will enhance learning, and to assist with modelling ideas and methods. We encourage the children to consider and discuss effective, fluent methods of problem solving.

In all classes there are children of differing mathematical ability. We recognise this fact and provide suitable learning opportunities for all children by offering support and challenged where appropriate. Our 'Mastery' approach to teaching mathematics enables all children to access the same curriculum content and, rather than children being extended with new learning, they are given opportunities to deepen their conceptual understanding by tackling challenging and varied problems. Throughout lessons a range of strategies are used to ensure appropriate age related learning.

Children are asked to undertake independent work but other strategies are also utilised: In some lessons group work is undertaken, and in other lessons, children work on open-ended problems or games in pairs. We also use classroom assistants to employ questioning as a means of developing understanding.

Children are set maths home learning tasks during the year to strengthen their learning in mathematics.

### **Planning and schemes of work**

To ensure implementation of the statutory requirements of the programme of study for mathematics from the National Curriculum 2014 we follow the 'Mathematics Mastery' programme. We started this programme in September 2020 and launched it in Reception, Year 1 and Year 2 at that time.

It is the class teacher who completes the weekly plans for the teaching of mathematics. They will consider, the needs of their own class and adapt and plan accordingly. There is no formal requirements for how these plans are formatted and teacher are free to make their own choice about how they will look. However, planning may be examined by the Mathematics Lead or Senior Leadership Team as part of the monitoring timeline.

## **Differentiation**

We enjoy teaching mathematics to all children, whatever their ability. It is part of the school curriculum policy to provide a broad and balanced education to all children within mixed ability age specific classes. Class teachers identify children who may need support with mathematics at the earliest possible stage and this is further developed with senior leadership team members at pupil progress meetings. We ensure that children are supported or challenged appropriately within lessons, whilst trying to move the majority of children on at broadly the same rate. Work in mathematics takes into account the targets set for individual children in their Individual Learning Support Plans (LSPs). The class teacher and SEND co-ordinator work in close conjunction to ensure all children are able to develop their skills, this may take the form of small group or 1:1 group work outside the normal Mathematics lesson.

Our school also maintains an EAL register, and where there is need, this will be addressed within mainstream classroom environment.

## **Mathematics across the wider curriculum**

### **Opportunities for Spiritual, Moral, Social and Cultural learning**

The organisation of our Mathematics lesson regularly allows children to work together and gives them opportunity to discuss ideas and results. Furthermore, the teaching of Mathematics develops children's understanding of wider cultures as we learn about specific theories in mathematics and develop an appreciation for the development of mathematical ideas from around the world. Mathematics also allows children to connect with their British heritage through contextualised lessons and specifically learning about our currency system. We also encourage enquiry and reasoning so children can develop skills to express their own opinion or answer to a problem in a socially acceptable way.

## **English**

Mathematics contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. The vocabulary of mathematical terms, and language for reasoning in mathematics is significantly influenced by our English curriculum. You will see the children using full sentences to explain their mathematical thinking. As

well as verbally expressing their reasoning, Key Stage 1 children are given opportunities during class time to practise giving written explanations of their mathematical thinking. In addition to this, we encourage children to read and interpret problems in order to identify the mathematics involved. The children also explain and present their work to others during plenary session, enjoy stories and rhyme that link mathematics to English.

## **Science**

During science lessons, children are able to use their reasoning to explain their scientific thinking. They apply their data handling skills when creating tables and graphs of scientific measurements. Whole class discussion of data also highlights the importance of clear recording of information. Children are also able to use a wide range of measuring devices in a real-life context. Children are required to read the scales on metre sticks, measuring cylinders, weighing scales and a variety of other instruments.

## **Computing**

Children use and apply mathematics in a variety of ways when solving problems using programming. Younger children use computers to practise their mathematical skills and they use simulations to identify patterns and relationships.

## **Personal, social and health education (PSHE) and citizenship. Relationship and sex education.**

Mathematics contributes to the teaching of personal, social and health education and citizenship. The planned activities that children do within the classroom encourage them to work together and respect each other's views. We present children with real-life situations across many mathematical concepts and encourage children to enquire and investigate their own predictions-developing personal resilience and enquiry for life long mathematical learning.

## **Assessment, record keeping and target setting**

Effective assessment involves careful observation, analysis and review by class teachers of each child's knowledge, skill and understanding, in order to track their progress and make informed decisions about planning for their next steps in learning. Throughout the year teachers continually assess the children against their year group curriculum programme of study using the terminology 'WTS, EXS and GDS.' Data is submitted termly and teachers use a range of resources to inform their decision. This may include, a strong understanding of how the child performs on a daily basis and the work they produce which is then verified for a standard through use of the Key Performance Indicators for each year group.

As a school we use PUMA (Progression in Understanding Mathematics Assessments) tests which provide information about a child's mathematical understanding. We also in Key Stage 1 use 'Mathematics Mastery' half-termly assessments to see progress during that half-term units.

As a school, we understand that test data is not always reliable and sometimes children under or over achieve. For this reason, test data is used by teachers as a guidance and teachers are encouraged to use their own judgement to inform how they assess a child. Where a child under achieves in a test and is judged at a higher level than the test suggests, teachers are asked to provide evidence of work that shows that the child is working at a higher level.

Children's work is monitored by their class teacher, Head of School and Mathematics leader to assist in planning for future work to meet the needs of the children. This scrutiny of the work of children of all abilities is carried out across the school and is discussed at Senior Leadership meetings.

## **Resources**

There is a range of resources to support the teaching of Mathematics across the school and the school recognises the imperative nature of mathematical conceptual development from concrete to pictorial, and pictorial to abstract, enabling all children to access the lesson objective. All classrooms have wide range of appropriate small apparatus and pictorial representations.

We have a wider range of intervention resources which class teachers may use in conjunction with the SEND co-ordinator to support the learning of

Mathematics. These resources include: Closing the gap intervention materials, Numicon and Cuisenaire.

### **Home Learning**

Children are set maths home learning tasks during the year to strengthen their learning in mathematics taking place in class.

### **Role of the Mathematics Leader**

The Mathematics Leader carries out the following tasks in addition to his/her role as a class teacher:

- is a good role model as a class teacher for all members of staff
- ensures a coherent Mathematics strategy for John of Gaunt School
- helps, where appropriate, with planning lessons and may support teachers with the teaching of the curriculum
- creates an annual action plan and carries out termly monitoring
- attends termly pupil progress meetings
- completes moderation exercises and maintains a file of evidence. This is shared with staff
- works to ensure resources are maintained and available
- gather the views of children
- attends the Norfolk Primary Mathematics Networking meetings termly and gives feedback to staff as necessary
- attends other Professional Development opportunities, as agreed with SLT, and gives feedback to staff as necessary
- monitors the impact of whole school actions and initiatives in the teaching of Mathematics
- works with SLT to monitor standards of teaching and learning in Mathematics, by observing lessons, scrutinising planning and children's work
- keeps up-to-date with both national and local initiatives; working, where necessary, with SLT to implement such initiatives in school
- maintains a working relationship with our feeder schools

## **Role of the Governing Body and Senior Leaders**

- To review, alongside the maths leader, the intent and design of our maths curriculum
- To ensure the implementation of the statutory National Curriculum
- To monitor and report on the implementation of our approach and its impact on outcomes for pupils

## **More information**

If you require more information about maths at our school please do not hesitate to contact our Maths Lead:

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