

## Mathematics Policy

### 1 Curriculum Statement

#### Intent

At St John's Primary School we believe that mathematics teaches children how to make sense of the wider world around them through developing their ability to calculate, reason and solve problems. We embed the idea that a good understanding of mathematics will provide a foundation for understanding the world and the ability to reason mathematically. We are committed to developing children's curiosities about the subject and we want all children to have a sense of enjoyment and achievement.

Our objectives in the teaching of mathematics are to:

- ensure that pupils are fluent in the fundamentals of mathematics
- ensure that pupils are able to reason mathematically
- ensure that pupils can solve problems by applying mathematical skills
- promote enjoyment of learning through practical activity, exploration and discussion
- promote confidence and competence with numbers and the number system;
- develop resilience and self-confidence in applying their learning skills
- help children understand the importance of mathematics in everyday life
- help children develop the enjoyment and curiosity around the subject
- develop the cross-curricular use of mathematics in other subjects

#### Implementation

A 'mastery' approach is being introduced at St John's Primary School. We have reviewed our curriculum and are implementing larger teaching blocks over the year. This supports the needs of our learners and allows them to consolidate skills to support retention.

We have recently adopted the White Rose Scheme as after plentiful research we decided this offered the best curriculum coverage and will allow the children to develop an ability to use their knowledge and understanding to a greater depth of understanding. It offers a variety of fluency, reasoning and problem solving approaches, recaps on previous learning missed due to COVID and includes all learners. When planning for objective coverage and progression, teachers are expected to take the following mastery strategies into account:

- Small steps
- Implementing the Concrete, Pictorial and Abstract (CPA) approach to introducing, exploring and applying mathematical concepts
- Applying/using multiples approach as a strategy to approach calculation/problems for example; bar models, part whole models, place value charts etc.
- Considering key questions and mathematical vocabulary when planning
- Provide opportunities for verbal and written/drawn reasoning (explaining and using mathematical vocabulary to explain methods or reasoning)
- Inclusion of relevant problem-solving opportunities
- Modelling of all skills and approaches
- Modelling and sharing of efficient and accurate application of methods
- Opportunities to explore maths concepts/objectives at 'greater depth'
- Include all learners, providing relevant support for those with additional needs

## **Impact**

Teaching and learning in mathematics should be interactive and engaging, with content made relevant to children's real-world experiences and contextualised thus to support consolidation and retention of knowledge and skill.

Children should approach mathematics with confidence and enthusiasm, and have a thirst for tasks and challenges including those that require problem solving and reasoning.

Teaching and support staff should also see this introduction of 'mastery' maths as a period of implementation and as an opportunity to update and increase their knowledge of the mathematics curriculum and up to date methods of learning.

## **2 Teaching and learning**

The school uses a variety of teaching and learning styles in mathematics. Our principal aim is to develop children's knowledge, skills and understanding. During our daily lessons, we encourage children to ask as well as answer mathematical questions. They have the opportunity to use a wide range of manipulatives, such as number lines, number squares, digit cards and small apparatus such as base 10, numicon and tens frames to support their work. ICT is used in mathematics lessons for modelling ideas and methods to enhance teaching and learning. All children receive a weekly mental arithmetic lesson in order to develop confidence and fluency.

In all classes, children have a wide range of mathematical abilities. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this through a range of strategies – in some lessons through supported group work and, in other lessons, by organising the children to work in pairs on open-ended problems or games. We use teaching assistants to support some children, and manipulatives to meet the needs of the learners.

## **3 Mathematics curriculum planning**

Mathematics is a core subject in the National Curriculum. We use the National Curriculum programmes of study as the basis for our curriculum planning. We are currently following The White Rose Scheme including their long term plan and medium term plan.

We carry out the curriculum planning in mathematics in three phases (long-term, medium-term and short-term). Our medium term planning is a working document and it includes each objective and where they will be taught. They ensure an appropriate balance and also highlight the progression from each year group. These plans are reviewed by the subject leader.

It is the class teacher who completes the weekly plans for the teaching of mathematics. These weekly plans list the specific learning objectives taken from the National Curriculum, and give details of how the lessons are to be taught. They show the smaller steps and include elements of fluency, reasoning and problem solving within lessons.

We plan the activities in mathematics so that they build on the children's prior learning following the smaller steps. While we give children of all abilities the opportunity to develop their skills, knowledge and understanding, we also plan progression into the scheme of work, so that there is an increasing challenge for the children as they move up through the school.

## **4 The Early Years Foundation Stage**

We teach mathematics in our nursery and reception classes from the mathematics section of our bespoke EYFS curriculum document. We relate the mathematical aspects of the children's work to the objectives set out in the Early Learning Goals, which underpin the curriculum planning for children aged three to five. Our Reception class follow 'White Rose Maths' which ensures a solid progression of the curriculum moving forward to Key Stage 1. Through daily isolated number sessions and child initiated play we give all the children ample opportunity to develop their understanding of number, measurement, pattern and shape and space. They are given a variety of activities that allow them to enjoy, explore, practise and talk confidently about mathematics.

## **5 Contribution of mathematics to teaching in other curriculum areas**

### *English*

The teaching of mathematics contributes significantly to children's understanding of English in our school by actively promoting the skills of reading, writing, speaking and listening. For example, in mathematics lessons, we expect children to read and interpret problems, in order to identify the mathematics involved. They are also expected to demonstrate speaking and listening skills when providing reasoning in mathematics. In English lessons, too, maths can contribute: younger children enjoy stories and rhyme that rely on counting and sequencing, while older children encounter mathematical vocabulary, graphs and charts when reading non-fiction texts. Younger children can also enjoy maths taught through story.

### *Personal, social and health education (PSHE) and Cultural Capital*

Mathematics contributes to the teaching of PSHE and Cultural Capital. The work that children do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that children do within the classroom encourage them to work together and respect each other's views. During lessons children are reminded of enterprise, understanding businesses and how they work. Children are frequently spoken to about finances, budgeting and resourcing areas of the school.

### *Spiritual, moral, social and cultural development*

The teaching of mathematics supports the social development of our children through the way we expect them to work with each other in lessons. We group children so that they work together, and we give them the chance to discuss their ideas and results.

Mathematical concepts and vocabulary are used in all curriculum areas. In our school we try to address these links as often as possible to enhance our 'intent' statement and how mathematics is essential to everyday life.

## **6 Mathematics and ICT**

Information and communication technology enhances the teaching of mathematics significantly, because ICT is particularly useful for mathematical tasks. It also offers ways of impacting on learning which are not possible with conventional methods. Teachers can use software to present information visually, dynamically and interactively, so that children understand concepts more quickly. Younger children use ICT to communicate results with appropriate mathematical symbols. Older children use it to produce graphs and tables when explaining their results, or when creating repeating patterns, such as tessellations. When working on control, children can use both standard and non-standard measures for distance and angle. They can also use simulations to identify patterns and relationships. E-mail permits collaborative problem-solving.

## **7 Mathematics and inclusion**

At our school, we teach mathematics to all children, whatever their ability and individual needs. Mathematics forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our mathematics teaching, we provide learning opportunities that enable all pupils to make good progress. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents and those learning English as an additional language, and we take all reasonable steps to achieve this. (For further details, see separate policies on Special Educational Needs, Disability Discrimination, Gifted and Talented Children, English as an Additional Language (EAL).)

When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, differentiation – so that we can take some additional or different action to enable the child to learn more effectively. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels. This ensures that our teaching is matched to the child's needs.

Sometimes mathematical targets are set as part of a child's SEND Support Plan. Teachers will pay regard to such targets when designing lessons or setting individual tasks in mathematics.

As we are being introduced to a mastery approach there is little differentiation in the content taught but the questioning and scaffolding individual children receive in class as they work through problems will differ. Higher attainers will be challenged through more demanding problems, which

deepen their knowledge of the same content before acceleration onto new content. Children's difficulties and misconceptions are identified through immediate formative assessment and addressed with rapid intervention – commonly through individual or small group support later the same day.

## **8 Assessment**

Teachers will assess children's work in mathematics from three aspects (long-term, medium-term and short-term). We use short-term assessments to help us adjust our daily plans. These short-term assessments are closely matched to the teaching objectives. The formative assessment happens daily through conversations and marked work. Children are always given constructive feedback which they are given the opportunity to respond to and moving on feedback to further learning.

Each term we use NFER assessments with all pupils which are a standardised assessment. These tests can then be used to give children standardised scores which can be reported to parents. Teachers can monitor particular children in their class and use the data for appropriate interventions. Data can be used to further the class teacher's planning, contribute towards the whole school tracking of attainment and progress on ITRACK and analysed by the subject lead to identify target groups or any trends.

We make long-term assessments towards the end of the school year, and we use these to assess progress. End of year data is also used to measure the extent to which attainment gaps for individuals and identified groups of learners are being closed. This data is used to inform whole school and subject development priorities for the next school year.

## **9 Resources**

The use of Mathematics resources is integral to the concrete – pictorial – abstract approach which is an approach we are beginning to focus heavily on.

The school has a wide variety of good quality equipment and resources, both tangible and ICT based, to support our learning and teaching. These resources are used by our teachers and children in a number of ways including:

- Demonstrating or modelling an idea, an operation or method of calculation.  
Resources for this purpose would include: a number line; place value cards; base 10; place value counters and grids; money or coins; measuring equipment for capacity, mass and length; 5 bead strings; the interactive whiteboards and related software; 3D shapes and/or nets; Numicon and related resources and software; multilink cubes; clocks; protractors; dice; number and fractions' fans; individual whiteboards and pens; and 2D shapes and pattern blocks, amongst many other things
- Enabling children to use a calculation strategy or method that they couldn't do without help, by using any of the above or other resources as required.

Standard resources, such as number lines, multi-link cubes, base 10, hundred squares and counters are located within individual classrooms. Further resources (often larger items shared by the whole school) are also available as part of a central supply.

Teachers are also encouraged to use the school playgrounds as an outdoor classroom when possible, for example, when teaching length, area or perimeter. In our EYFS the outdoor classroom is used frequently.

## **10 Monitoring and review**

The coordination and planning of the mathematics curriculum are the responsibility of the subject leader who also:

- supports colleagues in their teaching, by keeping informed about current developments in mathematics, and by providing a strategic lead and direction for this subject;
- attends network meetings to keep 'up to date' with mathematics
- has frequent discussions with the headteacher and SLT about findings, ideas and strengths and weaknesses from monitoring

- uses specially allocated leadership time to review evidence of mathematics in school

The quality of teaching and learning in mathematics is monitored and evaluated by the subject lead and headteacher as part of the school's agreed cycle of monitoring and evaluation.

A named member of the school's governing body is briefed to oversee the teaching of mathematics. The mathematics governor meets regularly with the subject leader to review progress.

This policy will be reviewed every three years or sooner if necessary.