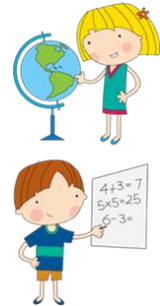




Kingshill Church School Mathematics Policy



Our curriculum is child centred and relevant, promoting curiosity and excitement through discovery. It promotes high standards and aspirations and will enable children to be resourceful, resilient and reflective.

Rationale

Mathematics equips pupils with the uniquely powerful set of tools to understand and change the world. These tools include logical reasoning, problem solving skills and the ability to think in abstract ways.

Mathematics is important in everyday life. It is integral to all aspects of life and with this in mind we endeavour to ensure that children develop a positive and enthusiastic attitude towards mathematics that will stay with them.

The National Curriculum describes mathematics in detail and what pupils must learn in each year group. Combined with our School Pupil Tracker Online ensures continuity and progression and high expectations for attainment in mathematics.

It is vital that a positive attitude towards mathematics is encouraged amongst all of our pupils in order to foster confidence and achievement in a skill that is essential in our society. At Kingshill Church school we use the National Curriculum for Mathematics as the basis of our mathematics programme and incorporate 'teaching to the gaps' from our assessments. We are committed to ensuring that all pupils achieve a secure understanding of the key concepts of mathematics, appropriate for their age group, in order that they make genuine progress and avoid gaps in their understanding that provide barriers to learning as they move through education. Assessment for Learning, an emphasis on investigation, problem solving and the development of mathematical thinking and a rigorous approach to the development of teacher subject knowledge are therefore essential components of the Kingshill Church School approach to this subject.

Principles

- policy and provision are evaluated and reviewed regularly
- resources of time, people and equipment are planned, budgeted for and detailed when appropriate in the School Improvement Plan and Maths Development Plan.
- supported by the school's subject Leader for Mathematics, teachers engage in joint professional development to optimise the quality of teaching in mathematics
- planning of mathematics ensures continuity and progression across all year groups and key stages

Aims

We aim to provide the pupils with a mathematics curriculum and high quality teaching to produce individuals who are numerate, creative, independent, inquisitive, enquiring and confident. We also aim to provide a stimulating environment and adequate resources so that pupils can develop their mathematical skills to the full.

Our pupils should:

- have a well-developed sense of the size of a number and where it fits into the number system
- know by heart number facts such as number bonds, multiplication tables, doubles and halves
- use what they know by heart to calculate mentally
- calculate accurately and efficiently, both mentally and in writing and paper, drawing on a range of calculation strategies
- recognise when it is appropriate to use a calculator and be able to do so effectively
- make sense of number problems and investigations, including non-routine/'real' problems and identify the operations needed to solve them
- explain their methods and reasoning, using correct mathematical terms
- judge whether their answers are reasonable and have strategies for checking them where necessary
- suggest suitable units for measuring and make sensible estimates of measurements
- explain and make predictions from the numbers in graphs, diagrams, charts and tables
- develop spatial awareness and an understanding of the properties of 2D and 3D shapes
- use mathematical vocabulary accurately

Provision

Pupils are provided with a variety of opportunities to develop and extend their Mathematical skills, including:

- Group work
- Paired work
- Whole class teaching and discussion
- Individual work

Pupils engage in:

- the development of mental strategies
- written methods
- practical work
- investigational work
- problem solving
- mathematical discussion

- consolidation of basic skills and number facts
- maths games

We recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. We use accurate mathematical vocabulary in our teaching and children are expected to use it in their verbal and written explanations. Mathematics contributes to many subjects and it is important the children are given opportunities to apply and use Mathematics in real contexts. It is important that time is found in other subjects for pupils to develop their Numeracy Skills, e.g. there should be regular, carefully planned opportunities for measuring in science and technology, for the consideration of properties of shape and geometric patterns in technology and art, and for the collection and presentation of data in history and geography. We endeavor at all times to set work that is challenging, motivating and encourages the pupils to think about how they learn and to talk about what they have been learning. Additional enrichment opportunities are provided for pupils to further develop mathematical thinking e.g. through cooking, music, and maths investigations and games. Teachers plan problem solving and investigational activities every week to ensure that pupils develop the skills of mathematical thinking and enquiry. Children practise their basic skills every week and their results are recorded.

To provide adequate time for developing mathematics, maths is usually taught daily and discretely. Maths lessons may vary in length but will usually last for about 45 minutes in Key Stage 1 and 45 - 60 minutes in Key Stage 2.

A typical lesson in Year 1 to 6 may have the following components and will be focused on teaching to the gaps.

◆ **oral and mental work across the range of mathematics**

This will involve work to rehearse, sharpen and develop mental and oral skills and reasoning.

◆ **direct teaching**

This will include both teaching input and pupil activities and a balance between whole class, guided grouped and independent work, (groups, pairs and individual work) offering appropriate challenge. Sometimes the focus for this session is new learning, at other times pupils may be practising, to master the application of a concept they have learned earlier. The focus of this session may vary for different children depending on their learning needs.

◆ **assessment for learning**

This will involve work with the whole class/groups/individuals to sort out misconceptions, identify progress, to summarise key facts and ideas and what to remember, to make links to other work and to discuss next steps.

At times there may be opportunities to develop skills and understanding of mathematics through additional activities, some of which may take place at home.

Teachers plan learning that is differentiated to meet the needs of all pupils, whether they have a specific learning difficulty in maths or whether they are particularly proficient. When scrutinising work in maths books, the Subject Leader for Mathematics expects to see work from any one lesson on a similar theme, differentiated for high attaining, middle attaining and lower attaining pupils. Children, especially in KS2, have regular opportunities to choose their level of challenge.

APE Reasoning

Verbal reasoning is an integral part of maths as it allows children to explain their thinking and for teachers to identify any misconceptions. In Kingshill, children are given many opportunities to develop and show their reasoning skills with APE reasoning. This gives the children a scaffold to

work through and present their ideas. APE stands for answer, prove and explain: answer is where children give their answer to a given question; prove is for children to show how they got their answer with diagrams or calculations and explain is where the children write/ say sentences showing how they got their answer.

Presentation

Children should be given maths books with squares which are appropriate for their age and ability. Below are expectations for presentation in maths:

- The date and Learning objective is to be underlined neatly, by the child in KS2;
- If there is no pre-drawn margin, KS2 children should draw a 4 square margin using a ruler;
- In Maths books, children to draw a central margin to work in 2 columns;
- If children need to do any working out, this is to be done neatly in their Maths book;
- When children set out maths work, each digit or symbol should be in a separate square and they should be taught to space out their work appropriately;
- If children need to colour a drawing, diagram or graph in their books, they should only use coloured pencils not felt tips;
- Only pencil to be used in maths books (unless using a going for green pen);
- Each calculation must be clearly numbered in the margin to distinguish it from working figures;
- There should be at least one square between each calculation, both horizontally and vertically;
- Children should use rubbers, but must ensure that work is rubbed out neatly. This should be supervised if necessary;
- Where used, worksheets to be trimmed and stuck into exercise book neatly

Assessment

We use School Pupil Tracker Online (SPTO) to assess children in maths. This is an online tool which has objectives linked to year groups and the National Curriculum. Teachers update SPTO regularly highlighting which objectives each child has achieved. They then use this as a planning tool to ensure that any gaps in understanding are addressed.

Formative Assessment

Teachers integrate the use of formative assessment strategies such as effective questioning, clear learning objectives, the use of success criteria and effective feedback and response in their teaching.

Summative Assessment

The school's progress tracking system is updated three times a year. National Curriculum tests are used at the end of KS1 and 2; teachers use past and sample papers to inform their assessments as they prepare pupils for these assessments.

The school's Assessment and Marking Policies inform high quality feedback and pupils' response to it in Mathematics.

Early Years Foundation Stage (EYFS)

We follow EYFS curriculum guidance for Mathematics. However, we are committed to ensuring the confident development of number sense and put emphasis on mastery of key early concepts. Pupils explore the 'story' of numbers to ten and the development of models and images for numbers as a solid foundation for further progress.

Resources

A bank of essential mathematics resource is kept in each classroom. Further resources are kept centrally.

Information and Communication Technology

ICT is used in various ways to support teaching and motivate children's learning. Each classroom has a PC connected to an interactive whiteboard (Active Inspire software) and a 'visualiser'. All teachers are provided with a laptop to support their planning and provision and are encouraged to use ICT to enhance teaching and learning in mathematics where appropriate. The ICT suite is used regularly to support mathematics teaching.

Role of the Subject Leader

- Ensures teachers understand the requirements of the National Curriculum and helps them to plan lessons. Leads by example by setting high standards in their own teaching.
- Prepares, organises and leads CPD and joint professional development with the support of the Headteacher.
- Works with the SENCO.
- Observes colleagues with a view to identifying the support they need
- Attends CPD
- Keeps parents informed about Mathematics issues
- Discusses regularly with the Headteacher and informs the LGB of the progress of implementing National Curriculum for Mathematics in school
- Deploys support staff to address mathematics related needs within the school
- Monitors and evaluates mathematics provision in the school by conducting regular work scrutiny, learning walks and assessment data analysis.

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