



Mathematics Policy

Holy Family Catholic Primary School



Why we believe Maths is important

Mathematics is fascinating and an essential part of our everyday existence. It helps us to make sense of everything around us and is a powerful, universal language that enables us to predict events and tackle problems in everyday life. The skills gained through an understanding of mathematics are crucial to science, technology, finance and engineering and therefore a solid mathematical understanding is vital for securing employment and living independently.

At Holy Family Catholic Primary School, we aim not only to prepare our children for the next stage of their education, but also to lay the foundations for successful lives after school. Our aim is to prepare our children for the jobs of tomorrow, which will require greater mathematical skills than in the past, including thinking mathematically in order to use technology that doesn't yet exist.

The aims of our maths teaching at Holy Family Catholic Primary School are the same as the aims of the National Curriculum: fluency, reasoning and problem solving – both in the mathematics lesson and across the curriculum. We recognise that pupils need to learn basic number facts and acquire fluency in procedures, alongside developing conceptual understanding if they are to be able to solve increasingly complex problems in life and later in the workplace.

A mastery approach to the teaching of mathematics has been adopted, so we have high expectations of all our pupils. We endeavour to make the mathematics curriculum accessible to all pupils; moving them through the programme of study at broadly the same pace. All children need a deep understanding of the mathematics they are learning in order that future learning is built upon firm foundations. As we pursue this mastery approach we are moving away from separate intervention groups, instead introducing same day 'catch up' sessions and additional practice to prevent children falling behind. Part of this approach includes adopting a 'growth mindset' (see footnote i). Children at Holy Family are encouraged to believe they are all capable of learning and doing mathematics, given sufficient time, good teaching, appropriate resources and effort.

There are aspects of mathematics teaching which will be seen in every classroom at Holy Family:

- A positive attitude toward and sense of excitement about mathematics
- Children learn through active enquiry and experiment using concrete materials, represent their mathematical ideas through images and follow a clear progression toward recording abstractly
- Children learn to use multiple representations
- Mathematical skills are practised and applied across the curriculum
- A mathematically rich environment supports learning
- Communication, using precise mathematical language is supported
- Independence is encouraged
- Fluency and flexibility features strongly in every lesson
- Adults use skilful questioning to reveal, probe and address misconceptions
- Children who grasp concepts rapidly are challenged through rich and sophisticated problems
- Scaffolding is provided for children when required
- Skilful assessment identifies children who are struggling to grasp concepts leading to guided groups and catch up sessions with qualified teachers

Planning

We believe that the key to success with all learners is quality first teaching (see footnote ii). This is promoted through ongoing professional development from senior leaders.

Objectives are taken from the relevant year band overview and medium term plans. These objectives enable progression in learning towards National Curriculum level descriptors.

Teachers in each year group plan with the support of the senior leader attached to their year group. Detailed medium term plans are provided, along with guidance on calculations. Planning must always be guided by sound *Assessment for Learning* strategies. Planning is monitored regularly.

Weekly lesson plans are completed on a standard school proforma and saved in a planning file on the school computer system, along with flipcharts and other resources. Lesson plans include the role of additional adults in the classroom. Mathematics in the Foundation Stage is a practical, activity-based subject both indoors and outdoors. Each lesson in every year group is focussed around the concrete (model) – pictorial (image) – abstract approach as children learn new concepts. Teachers skilfully highlight connections between mathematical topics and support the learning of mathematical vocabulary.

The school does not follow a commercial maths scheme, but does have a wide range of resources available for teachers (including text books, practical resources, games and software). Activities are chosen which match the lesson objective, the needs and context of the cohort of children and may link to other areas of the curriculum, such as topic or real life problems.

Lesson Structure/Role of the Teacher/Teaching Assistant

Lessons are structured around the concrete – pictorial – abstract approach providing opportunities throughout for using mathematical vocabulary, developing mathematical thinking and using multiple representations. There should be opportunities to record in every lesson (in different ways).

The main teaching activity should be whole-class based with everyone covering the same content. Children are generally taught in classes, not setting groups in line with the mastery approach. Guided groups and catch up sessions are led by qualified teachers, whilst teaching assistants may circulate during the main part of the lesson, or take the lead on some whole class activities.

Lessons are structured with assessment opportunities throughout; these may be referred to as mini-plenaries. This provides opportunities to evaluate what has been learnt, review success criteria and address misconceptions. It should also provide opportunity for peer/self-assessment so children understand what they attained and where to go next. There are no specific time limits for the different parts of a lesson or a pre-determined format. See the assessment policy for more guidance on this.

The aim of a mathematics lesson is to teach a child a skill or strategy that will provide a solution to a task. It is not simply to produce a page of correct number work, which is abstract to any real life situation. To support this approach, we do not erase incorrect answers or approaches as they provide a valuable clue to the path a child is taking and becomes valuable informal assessment.

Although maths is taught as a discrete subject, staff are encouraged to exploit any cross-curricular links and provide opportunities for children to demonstrate their mastery of concepts or skills in other subjects (eg: science, ICT, PE, topic). It is the responsibility of teaching assistants supporting individuals or groups of children within a maths lesson to ensure they have read, and if required, discussed the planning with the class teacher and prepared any required resources. They are expected to provide feedback to the teacher on a daily basis for the children they have been working with. This feedback may be verbal or if preferred, written on their copy of the maths plan or on 'post-it' notes.

Learning in books is presented and marked in accordance with the school's presentation and marking policies.

Interventions

Interventions are in put into place when a need is identified through assessment for learning and assessment. These take place daily with the class teacher as guided group sessions and catch up maths sessions. Class teachers also teach a daily Big Maths session for 20-30 minutes. This is a whole school intervention programme. This is in place to ensure that all children have a solid grounding in number facts and a good grasp of number.

Classroom Environment

The classroom environment should be mathematically rich and support current learning.

Maths working walls should be interactive, clearly visible and provide the children with key vocabulary, number lines and charts, 100 squares, number facts, prompts and challenges appropriate to the age/stage and linked to current learning. Learning mats, maths dictionaries, iPad apps, and a range of concrete materials should be available for every child.

Homework

Appropriate homework activities are set for each year group. From Y1 homework is set via Mathletics (online resource) which children should be using at least three times a week. Teachers will also set other homework tasks, which may be games to play, facts to learn, or paper based questions to answer and return. There are additional homework activities available in the Maths Academy and on the school website. They key facts for each year group are also listed on the school website.

Family Partnerships

It is vital that parents and carers are actively involved in their children's learning. Maths Inspire Workshops take place annually year for each class. During these workshops, parents have an opportunity to work with their children on fun, purposeful maths activities that can be extended into the home. Each workshop is planned and delivered by their children's teacher in collaboration with the maths leader. There is also support offered to parents via Parent classes and the school website. We also provide a maths times tables club, homework help and personal contact with the class teacher whenever needed

Resources

Each class/year group has a range of general mathematical equipment (eg: dictionaries, base ten, dice, counting sticks, Numicon, etc). A wide range of additional resources are available in the maths store cupboard.

Recommended websites are listed on the school website and shared with staff via email updates. There are additional resources via the Mathletics website to support teachers during lessons via the interactive whiteboard and for homework and assessment activities.

Throughout the year additional activities are organised to raise the profile of maths within the school and children's enjoyment of this area; these may include visitors to promote maths skills and maths challenges in collaboration with other schools.

Equal Opportunities

The provision of maths teaching is regardless of race or gender and should allow all children to reach their full potential. In order to achieve this, activities should be set in a familiar context where possible. Children with special educational needs should be taught on an individual/small group basis when applicable (as guided by SENCO).

Record Keeping/ Assessment

Maths books provide evidence of progress, along with Stat Online and planning. Learning should be recorded in as many ways as possible to provide the child with a range of experiences.

Assessment is an ongoing process in the classroom which forms the basis of future action. Formal and informal teacher assessments are based upon the practical, written and oral work completed by the children.

Summative assessment takes place half termly and at the end of the year written tests are analysed in order to support end of year assessment judgements.

Each child should be involved in the review of his/her progress and be able to contribute to discussions about different aspects of his/her work.

Special Educational Needs/Gifted and Talented

We aim to provide a rich mathematical education, which will develop the potential of all pupils. Any child who is assessed to have special education needs in mathematics will have a maths target on an IEP and be placed on the school's SEN register.

Children who regularly grasp concepts rapidly and have been assessed as having mastered objectives from their year group may be identified by their class teacher as Gifted and Talented. Planning for these pupils will focus on enrichment prior to acceleration and the development of mathematical thinking rather than covering content more quickly. Various enrichment activities are organised throughout the year for these pupils in addition to the daily mathematics lesson, many of which enable them to learn with mathematicians from other schools. The maths leader is available to advise on the type of challenging and stimulating problems and probing questions most likely to prepare these pupils for an exciting future in mathematics.

Maths Leader

Approved by Governors 22 March 2018

To be reviewed annually.

Footnotes:

i) Growth Mindset features:

- Everyone can learn mathematics to the highest levels
- Mistakes are valuable
- Questions are important
- Mathematics is about creativity, pattern spotting and sense making
- Communication and making connections are vital components of mathematics
- In a mathematics classroom the focus is not on performing or giving quick answers
- Depth of understanding is more important than speed

ii) QFT includes:

- Highly focused lesson design with sharp objectives
- High demands of pupil involvement and engagement with their learning
- High levels of interaction for all pupils
- Appropriate use of teacher questioning, modelling and explaining
- An expectation that pupils will accept responsibility for their own learning and work independently
- Regular use of encouragement and authentic praise to engage and motivate pupils
- An emphasis on learning through dialogue, with regular opportunities for pupils to talk both individually and in groups