



C. E. PRIMARY ACADEMY
(HANDSWORTH)

Mathematics Policy

Subject Leader: J Saran

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Holy Trinity CE Primary Academy Vision Statement

"For I know the plans I have for you," declares the Lord, "plans to prosper you and not to harm you, plans to give you hope and a future." Jeremiah 29:11

At Holy Trinity CE Primary Academy our distinctive Christian values are at the heart of all we do. Through our curriculum and care our children develop independent curiosity, acquire a life-long appetite for learning and become well-rounded individuals, seeking 'hope and a future' for themselves and others.

1. Intent

1.1 Holy Trinity Curriculum

Our curriculum is about **bringing engagement, fun and enthusiasm** to learning so that our children develop independent curiosity, acquire a lifelong appetite for learning and become well-rounded individuals who achieve their full potential, both personally and academically. Our curriculum starts from the children in our academy and works out.

1.2 Mathematics at Holy Trinity

At Holy Trinity CE Primary School, we have ensured our Maths curriculum brings engagement, enjoyment, and enthusiasm so that our children develop independent curiosity, acquire a lifelong appetite for learning and become well-rounded individuals who achieve their full potential, both personally and academically. Holy Trinity adopts and adapts the mastery approach of the White Rose Maths, alongside the aims of the National Curriculum. We aim to develop positive, resilient attitudes towards Mathematics and an awareness of the fascination of mathematics. We aim to ensure our children work with competence and confidence with their Mathematical knowledge, concepts, and skills. Children continue to build their ability to solve problems, to reason, to think logically and to work systematically and accurately. At Holy Trinity, we promote the need to have initiative and an ability to work both independently and in cooperation with others. Children are encouraged to use and apply mathematics across the curriculum and in real life situations through a process of enquiry and experimentation.

Mathematics is important in everyday life and, with this in mind, the purpose of Mathematics at Holy Trinity is to develop an ability to solve problems, to reason, to think logically and to work systematically and accurately. All children are challenged and encouraged to excel in Maths. New mathematical concepts are introduced using a 'Concrete, Pictorial and Abstract' approach. This enables all children to experience hands-on learning when discovering new mathematical topics. It also allows children to have clear models and images to aid their understanding. Arithmetic and basic maths skills are practised daily to ensure key mathematical concepts are embedded and children can recall this information to see the links between topics in Maths.

1.3 Curriculum aims

We aim to develop lively, enquiring minds encouraging pupils to become self-motivated, confident and capable in order to solve problems that will become an integral part of their future.

The National Curriculum for mathematics aims to ensure that all pupils:

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and can recall and apply their knowledge rapidly and accurately to problems
- can reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

2. Implementation

2.1 Curriculum delivery

- A dedicated daily Maths lesson is planned for each class, which lasts for an hour in KS1 and KS2. In Early Years, pupils receive two maths inputs a week and are expected to complete two adult-led maths activities a week. Maths is however integrated into a range of daily activities in Reception and opportunities for maths learning are planned daily through continuous provision.
- In Reception and KS1, the first 10 minutes of every lesson is dedicated to following NTECM 'Mastering Number' approach. This project aims to secure firm foundations in the development of good number sense for all children from Reception through to Year 1 and Year 2. The aim over time is that children will leave KS1 with fluency in calculation and a confidence and flexibility with number. Attention will be given to key knowledge and understanding needed in Reception classes, and progression through KS1 to support success in the future.
- In KS2, the first 10 minutes is dedicated to 'Fact Fluency'. 'Fact Fluency' runs on a three-week cycle and is taught on Monday, Wednesday, and Friday. During the 'Fact Fluency' cycle, children are explicitly taught year group multiplication facts. These are then applied in games and quizzes. Children are assessed throughout in their recall and pace. This assessment will then support the teacher in ensuring all gaps in multiplication facts are taught before moving on to the next three-week cycle.

- Children in KS2 will take part in 'Flash Back 4' element of the White Rose programme on Tuesday and Thursday of each week to answer focus questions from previous learning. This allows children to revisit and consolidate where needed.
- Where possible, lessons use a Concrete, Pictorial and Abstract approach to guide children through their understanding of mathematical processes from Early Years to Year 6.
- A range of practical, problem solving, and reasoning resources are used to challenge all children and give them the opportunity to consolidate, support and justify their understanding.
- Variation is used to broaden the children's exposure to the learning objectives in a wide range of contexts to ensure deeper understanding.
- In Year 5 and 6 arithmetic skills are taught in place of 'Flashback 4' from Spring term. Focussing on fluency with mental and written methods using the four operations.
- Assessment for learning is used to support children to ensure they are targeted and challenged appropriately.
- Consolidation lessons are used to revisit previous learning and ensure maths skills are embedded.
- Homework is set to develop and review children's learning.
- Where possible, links are made with other subjects across the curriculum.
- Teaching, questioning and level of support is differentiated depending on the topic and the needs of the class.
- All children will be exposed to appropriate challenge through tasks and questioning including further mastery problem solving for children working at greater depth.
- Curriculum links are made with mathematical concepts where possible.

Early Years Foundation Stage

The programme of study for the Foundation stage is set out in the EYFS Framework: 'Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests

in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.'

2.2 Planning

At Holy Trinity, we adapt and deliver White Rose Maths. Staff adapt and change lessons daily to ensure all learning is personalised for our children. White Rose Maths provides the long, medium and short-term planning. This breaks down objectives into small steps. It also includes expectations of progression throughout each lesson. Teachers also use resources such as NCETM Primary Mastery Spines. These resources, amongst others, support teachers' pedagogy and subject knowledge.

When teaching a new topic, teachers must assess children's prior learning so that teachers can pitch lessons correctly. Planning documents clearly outline the learning objective, 'Steps to Success', 'Dig Deeper' questions to challenge all, possible misconceptions, and correct use of key vocabulary.

2.3 Teaching and Learning

Teachers will adapt the White Rose lesson structure. Within the White Rose lessons, teachers will plan for 'Dig Deeper' questions to get children to think deeper and apply their learning. Teachers also plan for activities where children can move onto at their pace.

Teaching and Learning using White Rose encompass the following:

- Children are taught a wide variety of concepts following White Rose, which covers all objectives as stated in the National Curriculum 2014. The White Rose Maths schemes of learning are designed to give sufficient time for teachers to explore and understand a concept in-depth; therefore, White Rose, and careful planning by the teacher, ensures concepts interleave prior content with new concepts.
- Differentiation is ensured by carefully planned questioning, assessment for learning, level of support and planned activities.
- Activities that are planned are a careful balance of individual, paired and group work.
- Lessons consist of direct teaching methods and correct use of vocabulary through modelled examples to ensure that all children are fully confident to tackle their application tasks.
- In all lessons, teachers will model, explain, and illustrate mathematical ideas to fully involve pupils and maintain their engagement through appropriately demanding activities.
- Staff will model use of correct mathematical language. All children are expected to use correct mathematical notation and vocabulary as modelled by the teachers.

- Mathematical misconceptions that may arise are pre-empted and planned for. These misconceptions are dealt with as soon as they are identified in a positive and supportive way.
- There is a clear emphasis on pupil's learning beginning with practical examples leading to informal jottings and mental strategies. Finally, pupil's learning will move onto more formal representations as laid out for year groups in the visual calculation policy.
- Children are given a variety of mathematical approaches to solving problems. These strategies include the use of bar modelling, which is encouraged throughout our school.
- The children are expected to gain wide range of experiences with a variety of materials including IT, which should be planned by teachers.
- Children are encouraged in all lessons to reason and explain their strategies.
- Homework is provided weekly. This is based on the children's learning in class to consolidate concepts.

2.4 Curriculum and planning

To ensure progression, Holy Trinity has adopted the long-term plan (LTP) from White Rose Maths. White Rose provides lesson overviews which supports and inform our medium-term planning (MTP). The LTP is used as a guide to pace out coverage of the curriculum throughout the year. Although the whole year is planned out, teachers use professional discretion when deciding on how long is needed on a particular curriculum area whilst ensuring all National Curriculum objectives are covered by the end of the year.

Teachers ensure that weekly planning include vital lesson aspects such as: learning objectives for the week, steps to success for each lesson, key questions, misconceptions, small steps to breakdown the lesson, support/questioning/activities provided for SEND and GDS and possible pre-empted misconceptions. Lesson structure is ensured on the Maths Notebook or PowerPoint slides. These are created to encompass key vocabulary, mental strategies, and arithmetic questions. These slides also contain 'Dig Deeper' questions to support 'at depth' thinking and variation.

2.5 Adaptive Teaching

To cater for the differing needs of our children in Maths, teachers ensure that their questioning is focused and targeted in not only supporting children's learning ability but also ensuring the children are encouraged to think 'deeper'. Activities and support provided during each lesson are carefully thought through to ensure the needs of the children in each class is met. At Holy Trinity, children are supported to ensure they have access to the mathematics curriculum at the appropriate standard. Children with special educational needs in mathematics are supported to enable them to achieve their learning objectives using their Individual Target Plans (ITPs). See *Special Educational Needs Policy and the Equal Opportunity Policy for details*.

3. Impact

3.1 Assessment

To assess and monitor children's progress in Mathematics, there are several assessment tools teachers at Holy Trinity use. This not only monitors children's progress but also measures attainment. Assessment is used to inform future planning, interventions, and is used to identify children needing additional support.

Assessment opportunities are a part of the planning process and on-going AfL is used to target teaching and learning. Standards are checked both in-school and through external moderation opportunities.

Assessment opportunities at Holy Trinity include:

- Verbal feedback provided during lessons
- Daily marking of children's work to inform future planning/lessons
- Targeted observations and focused discussions taking place in EYFS
- End of topic assessments using the White Rose assessments
- Listening to and questioning children to ascertain their level of understanding

- **Assessment for learning** is used:
 - daily within class to identify children needing support and adapt teaching.
 - during marking to highlight misconceptions and identify next steps.
- **Summative assessment** is used:
 - by each class teacher to assess the end of each topic alongside ongoing formative assessment.
 - to assess Year 1 at the end of Spring and Summer using NFER assessments.
 - at the end of autumn term in Year 2 using NFER to assess progress, to identify gaps in learning that need to be addressed, to identify any children needing additional support and to plan the support that they need.
 - at the end of each term to assess Year 3, 4 and 5 using NFER assessments.
 - to Year 6 is assessed every term in line with other schools as part of BDMAT.
 - during moderations meetings within school and with schools that are part of the Trust.
 - by the Senior Leadership Team and scrutinised through assessment trackers, to narrow attainment gaps between different groups of children and so that any additional support for teachers can be put into place.

Please read this policy in conjunction with our *Assessment Policy*.

3.2 Statutory assessment

In EYFS children are assessed at the end of Reception against the Early Learning Goals criteria for the Mathematics specific area of development and are graded as emerging or having met the goals for number and numerical patterns.

In Year 4 the Multiplication Tables Check (MTC) is a Key Stage 2 (KS2) assessment taken by pupils at the end of the year. The MTC assess children's fluent recall of multiplication facts. This is included in the national curriculum (2014) statutory programme of study for mathematics at KS1 and KS2. This assessment is delivered as an online, on-screen digital assessment.

Year 2 pupils sit national curriculum tests in mathematics (SATs). The tests are a tool for teachers to help them measure performance and identify each child's needs as they move into key stage 2. They also allow teachers to see how children are performing against national expected standards. Children will complete an arithmetic and reasoning paper.

Year 6 complete the national tests (SATs) in May. SATs are a useful tool to see how well children have progressed from KS1 to KS2. Children will complete three papers in total (Paper 1 – Arithmetic, Paper 2 and 3 – Reasoning).

Years 1,3,4 and 5 complete their final NFER paper at the end of the summer term which informs teacher assessment before the children move to their next year group.

3.2 Monitoring

The subject is led by the Subject Leader and supported by the Senior Leadership Team. Each year, time is set aside to review standards and monitor curriculum provision and ensure training and resources are up to date.

Monitoring takes place regularly by the Subject Leader and the Senior Leadership Team through sampling children's work, book scrutinies, learning walks, lesson observations and pupil voice.

3:3 Equal opportunities

This policy firmly supports the equal opportunities philosophy of the school. Every child, regardless of gender, ethnicity or ability is given equal access to all aspects of the curriculum and participates fully in all lessons.

At Holy Trinity we recognise protected characteristics from *The Equality Act 2010*.

The following characteristics are protected characteristics:

- age
- disability

- gender reassignment
- marriage and civil partnership
- pregnancy and maternity
- race
- religion or belief
- sex
- sexual orientation.