



Archdiocese of
Birmingham



St Gregory Catholic Academy

Maths Policy



All Saints Catholic Collegiate

POLICY

Approval and review

Committee to approve policy	Curriculum Committee
Date of Academy Committee Approval	June 2016
Chair of Academy committee	
Signature	
Chair of Academy Committee	
Policy review period	12 months
Date of policy review	June 2017

MISSION STATEMENT

**With respect for God and united in faith, we place service before self to inspire hearts and minds.
By achieving together through out love and faith, we place Christ at the centre of all we do.**



Version Control			
Version	Date Approved	Changes	Reason for Alterations
Issue 1		Annual update of policy	



INTRODUCTION

The fundamental aim of Catholic education is to develop the spirituality within every person, through the development of faith. Teaching and experimental learning in mathematics provides a wealth of exciting opportunities to promote the spiritual gift of awe and wonder, by showing children that mathematics can be used to explain the world around us. It provides opportunities for children to learn about, investigate, explore and hypothesise about the world, by nurturing their natural curiosity. For example studying mathematical patterns which occur in nature, such as the symmetry of a snowflake, recurring number patterns, and sequences and the concept of infinity.

PURPOSE

The purpose of mathematics: Mathematics is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Aims

The aims of teaching mathematics in Saint Gregory's Catholic Academy are to ensure that all pupils: are **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. Pupils can **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language. Pupils 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. Pupils will develop a resilience through meta- cognitive skills.

LEARNING AND TEACHING

From the outset we encourage all children to develop an enjoyment and confidence in mathematics and this is included in all activities. In key stage 1 we ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This involves working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools].

Pupils develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching uses a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of year 2, pupils are expected to know the number bonds to 20 and be precise in using and understanding place value. We expect many pupils to exceed these expectations.

Pupils are expected to read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

In lower key stage 2 we ensure that pupils are increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. We expect that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

Pupils develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching ensures that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. Pupils are

expected to use measuring instruments with accuracy and make connections between measure and number. By the end of year 4, pupils are expected to have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils are expected to read and spell mathematical vocabulary correctly and confidently, using their growing reading knowledge and their knowledge of spelling.



In upper key stage 2 we ensure that pupils extend their understanding of the number system and place value to include larger integers. This develops the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

Pupils are expected to develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures consolidates and extends knowledge developed in number. Teaching ensures that pupils classify shapes with increasingly complex geometric properties and that they know the vocabulary they need to describe them.

By the end of year 6, pupils are expected to be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. We expect many pupils to exceed these expectations. Pupils are expected to read, spell and pronounce mathematical vocabulary correctly.

In St. Gregory's Catholic Academy we use a variety of teaching and learning styles in mathematics. We aim to develop children's knowledge, skills and understanding. In all our daily lessons we encourage children to ask, as well as answer mathematical questions. We encourage all pupils to use a range of mental strategies in Mathematics. They have the opportunity to use a wide range of resources, such as number lines, number squares, digit cards and apparatus to support their work. ICT is used in mathematics lessons for modelling ideas and methods. We encourage the children to use and apply their learning to everyday situations

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 differentiated 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 to ensure that work is matched to the needs of individuals

Maths lessons contain a guided session when the teacher focuses on a specific group in order to move them on in their learning. Children are given regular opportunities to develop thinking skills and to formulate their own questions and hypothesis through mathematical investigations and problem solving activities. They are encouraged to use and explain a range of mental strategies in their Mathematics.

PLANNING

Mathematics is a core subject in the Curriculum, and we use the 2014 New Primary Curriculum as the basis for implementing the statutory requirements for Maths.

We carry out the curriculum planning in mathematics in three phases (long-term, medium-term and short-term). The New Primary Curriculum for Teaching gives an outline of what we teach in each year.

Our medium-term mathematics plans, give details of the main teaching objectives for each term. They ensure an appropriate balance and distribution of work across each term.

It is the class teacher who completes the weekly plans for the teaching of mathematics. These weekly plans list the specific learning objectives and expected outcomes for each lesson, and give details of how the lessons are to be taught. These plans are monitored by the subject leader along with the Senior Leadership team. Class teachers are required to plan regular mathematical investigations and problem solving into their lessons and to encourage the using and applying (Mastery) of Mathematics.

THE EARLY YEARS FOUNDATION STAGE

In St. Gregory's Catholic Academy children are encouraged to develop an enjoyment and confidence in Mathematics through the objectives outlined in our Development Matters document.

Consistent approaches are carefully planned to develop their understanding of number, calculation measurement, pattern, shape and space, through varied activities that allow them to enjoy, explore, practise and talk confidently about mathematics. There is a strong emphasis on mathematical vocabulary, which children are encouraged to use when explaining or talking about maths. Mathematics is planned with links to all areas of learning.



CONTRIBUTION OF MATHS 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. In the Academy, the curriculum for mathematics reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions. Key vocabulary in Mathematics is taught explicitly in lessons and is displayed in the classroom for children to access.

Personal, social and health education (PSHE) and citizenship

Mathematics contributes to the teaching of PSHE and citizenship. 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.

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. We accept that all children are individuals and we adapt teaching to meet their individual needs.

Computing

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. Calculators should not be used as a substitute for good written and mental arithmetic. They should therefore only be introduced near the end of key stage 2 to support pupils' conceptual understanding and exploration of more complex number problems, if written and mental arithmetic are secure. Teachers should use their judgement about when ICT tools should be used

SEN and INCLUSION

In St. Gregory's Catholic Academy 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: Special Educational Needs; Disability Non-Discrimination; Gifted and Talented; 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 New Primary 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.

Intervention through SEN support will lead to the creation of a Learning passport for children with special educational needs. The learning passport may include, as appropriate, specific targets relating to mathematics.

We enable all pupils to have access to the full range of activities involved in learning mathematics. Where children are to participate in activities outside the classroom (a 'maths trail', for example) we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils

ASSESSMENT AND TARGET SETTING

Pupil progress is assessed by teaching and support staff, using a variety of methods.

In Foundation Stage, observations by staff are a prime source of assessment, which inform the Foundation Stage Profile assessments. Prior to entry into school, information from parents and carers, child minders, nursery groups or other sources may be included in the 'My World' booklet. The school places great value on this information which is used to plan the next stages of learning and development for each pupil.

Individual pupil scores are recorded for all areas of learning. This information is analysed by staff, under the leadership of the Foundation Stage/Key Stage 1 leader, and shared with staff.

All staff are required to maintain up-to-date records and assessments on all pupils. Information may be acquired through various means, including: Oral or written evidence from pupils, observations, pupil self-assessment, information from teaching support staff, parents/ carers, or other colleagues. All information is marked and evaluated by the class teacher.

Assessment for Learning (Formative assessment)

Daily assessments are used to inform subsequent learning and teaching. Staff are expected to adapt and modify planning and address the needs of all learners through differentiated activities and/or approaches. Assessment against the New Primary curriculum allows us to consider each child's attainment and progress against expected levels.

At St Gregory's we use Assertive Mentoring as a means to identify gaps in children's learning and teaching. This is a program that provides regular assessment and gives the children opportunities to develop independent learning skills using prompt booklets appropriate to their learning needs.

Pupil targets

Pupils in key stages 1 and 2 are set medium-term targets, over a termly period. These targets are produced through the Assertive Mentoring program and are individual to each child. These are shared and discussed with parents and carers. Children should be familiar with their targets and recognise their achievements and progress. Feedback from parents and carers should be acknowledged by staff, and supported by teacher assessment.

MARKING

Staff are required to provide prompt and constructive feedback on pupils' work, in accordance with the school's marking policy. As part of their entitlement, pupils should expect guidance and feedback on progress on a regular basis. This will also inform subsequent planning, teacher assessment and termly assessments.



INTENSIVE SUPPORT PROGRAM AND PERSONALISED LEARNING

Pupils not on track to achieve age related expectations or expectations based on prior attainment are identified and monitored closely through the provision they receive through RAP plans.

DCPRO SUMMATIVE ASSESSMENT

Progress of all pupils is evaluated and reviewed every half-term. Staff are required to enter the attainment for each pupil in Mathematics onto the DC Pro tracking system at the end of each half term. They are also required to provide updates and share information on target groups, with colleagues and the senior leadership team during professional discussions.

STATUTORY AND OPTIONAL TESTS

Pupils in Years 2 to 6 complete annual SATs tests in May. These are used to support teacher assessments and are reported to parents during progress evenings.

NUMBER BONDS AND TIMES TABLES (NUMBER FLUENCY)

Pupil's progress in number fluency is recorded throughout the school. Children will be assessed regularly on their number fluency and class teachers will provide pupils with targets to achieve. Parents will be informed of their child's targets in number fluency at parent consultations.

RESOURCES

All classrooms have a wide range of appropriate apparatus. Other resources are available in the Maths storage area. A range of software is available to support work with the computers

MONITORING AND REVIEW

Monitoring of the standards of children's work and of the quality of teaching in mathematics is the responsibility of the subject leader. The work of the subject leader also involves supporting colleagues in their teaching, being informed about current developments in the subject, and providing a strategic lead and direction for mathematics in the school. The subject leader gives the leadership team regular updates of progress in key priorities.

Signed: _____ Executive Headteacher Date: _____

Signed: _____ Chair of Academy Committee Date: _____

The policy will be reviewed