

St Ignatius' Primary School

Mathematics Policy

September 2017

Amended: December 2018

Next amended: September 2019

ST IGNATIUS' PRIMARY SCHOOL MATHEMATICS POLICY

School Mission Statement:

Our Catholic school of St Ignatius' puts the faith and uniqueness of Jesus Christ at the centre of our vision for our children. We all strive to treat every person with respect and understanding. We know that no matter who we are, or what our background is, in school we will all be listened to and valued. We are all children of God. We are totally committed to providing every opportunity for all of our children to develop intellectually, socially, physically and spiritually, through a working partnership with home, parish and other local faith communities, so that our children are prepared for further opportunities, responsibilities and experiences.

We work in an atmosphere of reconciliation where we all learn to forgive each other and to start each day afresh.

We acknowledge our great responsibility to help all our children on their individual faith journeys guided by our belief in the Word of God. The diversity of faiths in our school challenges us to teach our children to: live together, play together, pray together.

This is our school, this is our community, here we are Lord.

Introduction:

Mathematics is important in everyday life. With this in mind, we endeavour to ensure that children develop a healthy and enthusiastic attitude towards mathematics that will stay with them long after they leave our primary school.

This policy outlines what we are aiming to achieve in respect of pupils' mathematical education. It also describes our agreed approach to the planning, delivery and assessment of the mathematics' curriculum.

The National Curriculum (2013) for mathematics describes what must be taught in each key stage. The mathematics taught and the methods used reflect both the statutory requirements and the non-statutory guidance and recommendations outlined in the following documents:

- (A) The Revised Statutory Framework for the EYFS (2012)
- (B) The Development Matters in the EYFS (2012)
- (C) Mathematics Programmes of Study: key stages 1 and 2 National Curriculum in England (2013)
- (D) Mathematics Planning National Curriculum documentation – Lancashire County Council (2013)

This policy provides information and guidance for staff, governors and other interested persons.

Aims:

Mathematics helps children to make sense of the world around them through developing their ability to calculate, to reason and to solve problems. It enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics.

At St Ignatius' Catholic Primary School we aim to:

- develop a positive attitude to mathematics as an interesting and attractive subject in which all children gain some success and pleasure;
- develop mathematical understanding through systematic direct teaching of appropriate learning objectives;
- encourage the effective use of mathematics as a tool in a wide range of activities within school and, subsequently, adult life;
- develop an ability in the children to express themselves fluently, to talk about the subject with assurance, using correct mathematical language and vocabulary;
- develop an appreciation of relationships within mathematics;
- develop ability to think clearly and logically with independence of thought and flexibility of mind;
- develop an appreciation of creative aspects of mathematics and awareness of its aesthetic appeal;
- develop mathematical skills and knowledge and quick recall of basic facts

Teaching and Learning Style:

Our school uses a variety of teaching styles to cater for the different learning styles of pupils in mathematics lessons. Our principle aim is to develop children's knowledge, skills and understanding in mathematics. We do this through a daily lesson that has a high proportion of whole class and group teaching. During these lessons, we encourage children to ask, as well as answer, mathematical questions. They have the opportunity to use a wide range of resources such as number lines, number squares, digit cards and small apparatus to support their work. Children use ICT in mathematics lessons where it will enhance their learning, as in modelling ideas and methods. Although the programmes of study of the National Curriculum (2013) are organised into distinct domains, we believe, as the National Curriculum states, "that pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasing sophisticated problems" (DFE, 2013). With this at the forefront of our teaching, we ensure that using and applying is integrated into planning and teaching.

In all classes, there are children of differing mathematical ability. 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 differentiate to provide lower ability children with the resources,

scaffolds and support required to gain a confident, firm understanding of basic mathematical concepts and principles. We will also stretch the most able children to make the progress which they are capable of. This entails opportunities to challenge and extend their learning, for example, through problem solving, deeper reasoning and mastery questions. We cater for the learning needs of all children to ensure that they make sufficient progress.

We use teaching assistants to provide appropriate support to individuals or to groups of pupils. Teaching assistants within St Ignatius' Primary School are viewed as an important 'asset' to the school and, as such, are appropriately involved in the planning and delivery of the mathematics curriculum. Their knowledge, skills and understanding is constantly updated through involvement in school-based and LA led Inset.

Mathematics Curriculum Planning:

We use these key documents as the basis for implementing the statutory requirements of the programme of study for mathematics:

- Primary National Curriculum for Mathematics (2013);
- Mathematics Planning Support (Lancashire County Council (LCC), 2015);
- Lancashire and Progression Step (LAPS; LCC, 2018).

We carry out the curriculum planning in mathematics in line with the structures and recommendations outlined in the LCC medium term planning documentation. Our weekly plans list the specific learning objectives for each lesson and give details of how the lessons are to be taught.

The headteacher and mathematics subject leader are responsible for monitoring the mathematics planning within our school.

Lessons:

In all lessons, learning objectives and success criteria are clearly displayed, discussed and understood. It is our aim to make teaching interactive and lively in order to engage all children. A key element of this is to encourage mathematical discussion, using fundamental mathematical vocabulary in every unit of study (taken from the LCC planning documentation).

Lessons involve these essential elements:

- Instruction – giving meaningful information and structuring this well;
- Demonstration – showing, describing and modelling mathematics using appropriate resources, scaffolds and visual aids;
- Explaining and illustrating – giving accurate and well-paced explanations;
- Quality questioning and discussing: encouraging children to expand and explain their mathematical thinking and reasoning;
- Consolidating;
- Reflecting and evaluating responses: identifying mistakes and misconceptions and using them as positive teaching points;
- Summarising: reviewing mathematics that has been taught, enabling children to focus on their next steps.

Assessment:

Assessment has two main purposes:

- assessment of learning (also known as summative assessment);
- assessment for learning (also known as formative assessment).

Assessment of learning (AoL) – summative assessment

Assessment of learning is any assessment that summarises where learners are at a given point in time – it provides a snapshot of what has been learned. Within St Ignatius' Primary School, AoL is used appropriately, e.g. to provide a Teacher Assessment level and grade at the end of KS1.

Assessment for learning (AfL) – formative assessment

“Assessment for learning is the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to get to and how best to get there.” (Assessment Reform Group, 2002)

At St Ignatius' Primary School we recognise that AfL lies at the heart of promoting learning and in raising standards of attainment. We further recognise that effective AfL depends crucially on using the information gained.

Our school supports teacher assessment through the use of the Key Learning Indicators of Performance document (KLIPs; LCC, 2015). We use this to measure the progress that children make over each term, making a judgement on whether they are below, on track or above age-related expectations. We use the terms *entering*, *developing* and *secure* in relation to year group expectations. Definitions for these terms can be found in the introduction to the KLIPs document.

The assessment procedures within our school encompass:

- Making ongoing assessments and responding appropriately to pupils during 'day-to-day' teaching. These 'immediate' responses are mainly verbal and are not normally recorded;
- Using knowledge of pupils drawn from ongoing pupil tracking records and the progression document to inform 'prior learning' at the beginning of each unit of work to guide our planning and teaching;
- Adjusting planning and teaching within units in response to pupils' performance;
- Use of the *assessment for learning* questions within the assessment section of the Lancashire Interactive Planning tool (National Curriculum, 2014) to check learning against the end of year objectives. Future planning is adapted in response to assessment outcomes;
- Use of ongoing teacher assessment and the KLIPs grids in order to identify gaps in attainment on a termly basis;
- Use of information gained from termly LCC tests. Analysis of these tests is used to identify gaps in the children's learning and inform future planning and support for targeted children.

The Foundation Stage:

Work undertaken within the Foundation Stage is guided by the requirements and recommendations set out in the Revised Statutory Framework for the EYFS (2018) and the Development Matters in the EYFS (2018). We give all the children ample opportunity to develop their understanding of mathematics. We aim to do this through varied activities that allow them to use, enjoy, explore, practise and talk confidently about mathematics.

Contribution in Mathematics to Teaching in Other Curriculum Areas:

At St Ignatius' Catholic Primary School, we use the LPDS National Curriculum Support Materials to highlight creative learning opportunities and outcomes for mathematics across other subjects.

English

Mathematics contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening.

ICT

The effective use of ICT can enhance the teaching and learning of mathematics when used appropriately. When considering its use, we take into account the following points:

- ICT should enhance good mathematics teaching. It should be used in lessons only if it supports good practice in teaching mathematics;
- Any decision about using ICT in a particular lesson or sequence of lessons must be directly related to the teaching and learning objectives for those lessons;
- ICT should be used if the teacher and/or the children can achieve something more effectively with it than without it;
- Useful suggestions as to integrating ICT is given in the ICT section of the Lancashire Interactive Planning tool (National Curriculum, 2013).

Science

Almost every scientific investigation or experiment is likely to require one or more of the mathematical skills of classifying, counting, measuring, calculating, estimating and recording in tables and graphs. In science pupils will for example order numbers, including decimals, calculate simple means and percentages, use negative numbers when taking temperatures, decide whether it is more appropriate to use a line graph or bar chart, and plot, interpret and predict from graphs.

Art, Design and Technology

Measurements are often needed in art and design and technology. Many patterns and constructions are based on spatial ideas and properties of shapes, including symmetry. Designs may need enlarging or reducing, introducing ideas of multiplication and ratio. When food is prepared a great deal of measurement occurs, including working out times and calculating cost; this may not be straightforward if only part of a packet of ingredients has been used.

History, Geography and Religious Education

In History and Geography children will collect data by counting and measuring and make use of measurements of many kinds. The study of maps includes the use of co-ordinates and ideas of angle, direction, position, scale and ratio. The pattern of the days of the week, the calendar and recurring annual festivals all have a mathematical basis. For older children historical ideas require understanding of the passage of time, which can be illustrated on a time line, similar to the number line that they already know.

Physical Education and Music

Athletic activities require measurement of height, distance and time, while ideas of counting, time, symmetry, movement, position and direction are used extensively in music, dance, gymnastics and ball games.

Personal, Social and Health Education (PSHE) and Citizenship

Mathematics contributes to the teaching of personal, social and health education, 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.

Teaching Mathematics to Children with Special Needs:

At St Ignatius' Primary School we aim to provide a broad and balanced education to all pupils. Quality First Teaching is considered an entitlement for all pupils. Effective pupil tracking enables identification of pupils who may benefit from early 'intervention' at an appropriate point.

We also recognise, and aim to make provision for, pupils who have a particular ability in mathematics.

Resources:

There is a range of resources to support the teaching of mathematics across our school. Staff are encouraged to use practical and visual models to support children's learning in mathematics. All classrooms have a wide range of appropriate practical apparatus. A range

of interactive, digital aids are also available to support mathematics work, particularly on the SharePoint, for teachers to readily access.

Working Walls:

All teachers use effective working walls to enhance and support the learning of all children. These are changed in accordance with the mathematics unit that the children are studying and will be continually updated to reflect the development in the children's learning. Both teachers and children refer to the working wall during mathematics lessons to consolidate and build upon the learning taking place.

Mathematical vocabulary is displayed on the working walls using blue paper. This vocabulary is relevant and useful to the children's learning.

Working walls also display modelled work and teacher scaffolds to support the children in their understanding and reasoning skills.

These working walls are places of reference for every learner, including GAT, EAL and SEN groups.

Responses to Children's Work:

We recognise the importance of responding to children's work, whether orally or in writing. We seek to encourage children by acknowledging positive achievements. This could include praise for use of a viable method even if the end results were incorrect. Children are frequently provided with next steps to support and enhance their understanding and make links between previous and future learning. Children are given opportunities, and actively encouraged, to explain their work to others and to display their work when it seems appropriate. They are encouraged to value and respect the work of others.

Monitoring and Review:

Monitoring of the standards of children's work and of quality of teaching in mathematics is the responsibility of the headteacher and link governor supported by the subject leader.

The work of the subject leader also involves supporting colleagues in the teaching of mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school.