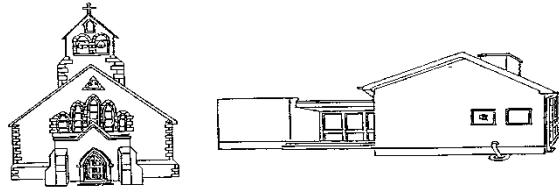


# Saint Mary's Primary School



## Mathematics And Numeracy Policy

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# St Mary's Primary School Aughlisnafin

## Mathematics and Numeracy Policy

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## **INTRODUCTION**

Mathematics and Numeracy is one of the six Areas of Learning within the Northern Ireland Curriculum. It focuses on the development of the mathematical concepts and numeracy across the curriculum. Numeracy is a life skill that will help children to make informed and responsible choices and decisions throughout their lives.

This is the Mathematics and Numeracy Policy agreed by the Principal, staff and Board of Governors of St Mary's Primary School. We value every pupil and the contribution they have to make to learning. Accordingly, we aim to ensure that every child achieves their full potential in this subject and that all are enabled to develop their skills in accordance with their level of ability and understanding in mathematics.

## **WHY WE TEACH MATHEMATICS**

Mathematics

- Provides a way of viewing and making sense of the world;
- Is used to analyse and communicate information and ideas;
- Addresses practical tasks and real life problems;
- Explores new ideas;
- Is enjoyable and valuable as a subject in its own right;
- Helps children work cooperatively and independently;
- Is an integral part of learning and is necessary for full participation in all aspects of the curriculum and is reinforced through other subjects.

## **PURPOSES OF POLICY**

The purposes of this Policy are:

- To promote a high standard of excellence and consistency of approach amongst all staff
- To communicate the main features of the teaching and learning of mathematics in our school
- To form a reference document for all staff members

Its intended audience is :-

- Existing and newly appointed staff members
- Members of the Board of Governors
- Existing and prospective parents
- Any other stakeholders and educational partners

In order to meet, and to continue to meet these purposes, the Policy will be regularly reviewed and updated.

## **GUIDANCE MATERIALS USED**

Whilst this Policy document is the result of extended discussion amongst all staff, with a lead role taken by our Numeracy Development Team, due consideration was given to externally produced guidance materials, specifically:

- Every School a Good School- a policy for school improvement ( DE 2009 )
- Better Numeracy in Primary Schools (E.T.I. 2010)

These helped define an agreed framework within which our Numeracy Policy was developed.

### **Every School a Good School**

This document provides a range of indicators of effective practice, in a whole school context. As such they are not necessarily specific to Numeracy, but provide a context in which all teaching and learning, including that in Numeracy, takes place. These indicators are grouped under four Characteristics – Child Centred Provision, High Quality Teaching and Learning, Effective Leadership and A School Connected to its Local Community. Our staff have agreed the following indicators are most relevant to Numeracy development in our school:

#### **Child – Centred Provision:**

- Decisions on planning, resources, curriculum and pastoral care reflect at all times the needs and opportunities of the pupils within the school.
- A clear commitment exists to promoting equality of opportunity, high quality learning, a concern for individual pupils and a respect for diversity.
- A school culture of achievement, improvement and ambition exists- with clear expectations that all pupils can and will achieve to the very best of their ability.
- Effective interventions and support are in place to meet the additional education and other needs of pupils and to help them overcome barriers to learning.

#### **High Quality Teaching and Learning:**

- An emphasis on literacy and numeracy exists across the curriculum.

- Teachers are committed and enthusiastic, enjoying a positive relationship with their pupils and with other school-based staff and dedicated to improving learning.
- Teachers use adaptable, flexible teaching strategies that respond to the diversity within the classroom.
- Assessment and other data is used to effectively inform teaching and learning across the school and in the classroom and to promote improvement.
- Rigorous self-evaluation is carried out by teachers and the whole school, using objective data and leading to sustained self-improvement.
- Teachers reflect on their own work and the outcomes of individual pupils.
- Education outcomes reflect positively on the school and compare well, when benchmarked measurement is undertaken, against the performance of similar schools.

#### **Effective Leadership:**

- An effective school development plan is in place, providing clear and realistic targets for improvement based on a sound vision for the school.
- School leaders demonstrate a commitment to providing professional development opportunities for staff, particularly teachers, and promote a readiness to share and learn from best practice.
- The resources at the disposal of the school are managed properly and effectively, with appropriate arrangements in place for financial management; attendance management; and working relationships.
- School leaders monitor and evaluate effectively school outcomes, policies, practices and procedures and the School Development Plan itself.

#### **A School Connected to its Local Community**

- Good relationships that facilitate engagement and communication between the school and its parents and the wider community that it serves.

- The school and its teachers are held in respect by parents and the local community who in turn actively support the work of the school.
- Good relationships and clear channels of communication are in place between the school and the education agencies that support it.

### **Better Numeracy in Primary Schools**

This document provided examples of effective practice, in a specific Numeracy context, as observed by ETI Inspectors within primary schools across Northern Ireland over recent years. Our staff agreed that, when taken together, these provided a detailed description of high quality provision for Numeracy. As such they were used to guide staff discussion in the production of this Policy. Individual examples taken from Better Numeracy, which the school uses to guide practice, are referred to in the individual sections of our Policy.

### **AIMS**

Relevant “Better Numeracy” characteristics:

Ethos:

- The children and staff have a positive attitude towards numeracy.
- There is a numeracy-rich environment; mathematical thinking and problem-solving are promoted through the creative use of the wider environment; interactive displays capture the children’s interest and enhance their enjoyment and understanding of numeracy.
- There are very good working relationships between the teachers and the children; the teachers nurture the children’s confidence whilst encouraging them to respond positively to learning challenges.
- Risk-taking is promoted as an opportunity to learn.

To enable our pupils to:

- Develop the knowledge, skills and understanding needed to apply a range of mathematical concepts;
- Learn to address problems in real- life situations;
- Develop personal qualities, positive attitudes and self-confidence;
- Sort independently;
- Become numerate and to think mathematically;

- Think logically;
- Learn to work cooperatively;
- Develop an understanding of maths through a process of enquiry and experiment;
- Appreciate patterns and relations in mathematics;
- Develop confidence in using mathematical language.

## **TEACHING MATHEMATICS**

The school's approach to teaching mathematics is based on four key principles:

- A dedicated mathematics lesson every day;
- Direct teaching and interactive oral work with the whole class and groups;
- An emphasis on mental calculation;
- Planned differentiation.

## **LEARNING AND TEACHING**

The content of the mathematics curriculum taught at St Mary's Primary School is guided by our statutory requirement to deliver the statutory curriculum for mathematics as laid out in the Northern Ireland Curriculum (CCEA 2007). It sets out the minimum requirements that must be taught at each Key Stage, grouped into 5 areas: Processes, Number, Measures, Shape & Space and Handling Data.

The staff of St Mary's Primary School have agreed a set of principles which will inform and guide the nature of the learning experiences of our children, designed to achieve the aims detailed above.

These principles are listed below, grouped under each of the five areas of mathematics:

### **Processes**

The NI Curriculum specifies a progression of Processes skills for children to acquire as they develop their mathematical ability. In order to facilitate this, the teaching staff in St Mary's Primary School will ensure:

- Activities which allow the children to develop and enhance processes skills will be a regular feature of classroom life.
- Opportunities will be provided for pupils to work collaboratively so that through discussion they can develop their use of mathematical language and organise their thinking.
- Children will be asked to show an increasing level of independence in their planning and recording of work as they progress through the school.
- Children will be asked to show an increasing level of independence in their selection of mathematics and materials as they progress through the school.

- Opportunities will be provided for children to become familiar with and apply a range of problem-solving strategies.
- Opportunities will be provided for children to search for patterns and use relationships in investigative work, leading to an appreciation of generalisations.
- Opportunities will be provided for children to use an increasing range of mathematical language to facilitate their ability to communicate their mathematical ideas.

## **Number**

The NI Curriculum specifies a progression of Number-based skills for children to acquire as they develop their mathematical ability. In order to facilitate this, the teaching staff in St Mary's Primary School will ensure:

- Children will be encouraged to use mental calculations where appropriate.
- Children will have the opportunity to discuss and develop a range of calculation strategies.
- Teaching will encourage flexibility of thinking and utilisation of connections within mathematics.
- Children's computational skills will be developed and consolidated using a balance between practice, and application in meaningful contexts, including Financial Capability.
- Opportunities will be provided for children to develop their estimation skills, and will be encouraged to estimate answers before completing calculations.
- Teaching will place a strong emphasis on ensuring children gain a sound understanding of the Place Value basis of the number system.

## **Measures**

The NI Curriculum specifies a progression of skills in Measures for children to acquire as they develop their mathematical ability.

In order to facilitate this, the teaching staff in St Mary's Primary School ensure:

- Children will use a range of measuring equipment in meaningful contexts, and be encouraged to make choices regarding the most suitable equipment.
- Children will follow a progression beginning with direct comparison, through measuring with non-standard units, to measuring with standard units with increasing accuracy.
- Children will be given opportunities to develop estimation skills in all measures.
- Teaching will place strong emphasis on ensuring that children understand that all measurement is approximate, and that they can make sensible decisions on the accuracy necessary in different situations.



## **Shape and Space**

The NI Curriculum specifies a progression of skills in Shape and Space for children to acquire as they develop their mathematical ability.

In order to facilitate this, the teaching staff in St Mary's Primary School will ensure:

- Teaching will place emphasis on observing and understanding the properties of 2-d and 3-d shapes.
- Opportunities will be provided for the practical construction & investigation of shapes.
- Children will be given opportunities to explore position and movement in real-life contexts, utilising U.I.C.T. where appropriate.

## **Handling Data**

The NI Curriculum specifies a progression of skills in Handling Data for children to acquire as they develop their mathematical ability. In order to facilitate this, the teaching staff in St Mary's Primary School will ensure:

- Teaching will be designed to ensure that children understand that the collection, representation and interpretation of data is a means through which real-life decisions can be made.
- Handling data skills are used as a means of solving problems, through a four-point process: Pose a question; Collect data; Organise data; Display & interpret data; Answer original question.
- Children will be given opportunities to make decisions regarding what information is collected, how it is collected, how information is processed and how it is displayed.
- Children will be given opportunities to apply data handling skills in a range of contexts, across subject areas.
- Children will be given opportunities to develop an increasing range of U.I.C.T. based handling data skills.

## **TEACHING APPROACHES**

Relevant "Better Numeracy" characteristics:

Learning and Teaching:

- The teachers have realistically high expectations of what the children can achieve; the children are challenged to extend their learning and appropriate support is provided when children are experiencing difficulties.
- Practical approaches are used effectively to develop mathematical concepts and to lay the foundation for more abstract work.
- The use of open-ended questions, problem-solving tasks and investigative activities develops the children's capacity to reason logically, think flexibly, and make and justify decisions.
- The children are given appropriate time and encouragement to communicate and explain their mathematical thinking, to articulate the processes they use, to ask questions and to talk about their learning.
- The children work well together in groups and co-operate effectively during practical sessions.
- The children engage actively in their learning and are confident in working independently and in applying their knowledge, understanding and skills in unfamiliar contexts.
- The children talk confidently about their thinking and learning in mathematics.

Although each teacher is an individual, with their own personal style of teaching, the staff have agreed that the following points will be a feature of all teaching in Mathematics in St Mary's. These are designed to ensure that every pupil is given the opportunity to experience success and to achieve as high a standard as possible.

- Teachers will always strive to :
  - build children's confidence and self esteem
  - develop children's independence
  - allow all children to experience regular success
  - make mathematics a relevant and satisfying part of their school experience
- Teaching will ensure that children make appropriate progress in their acquisition of the Skills, Understanding, Concepts, Facts and Competences as laid out in the NI Curriculum for Mathematics and Numeracy, through providing suitably differentiated learning activities to ensure that individual needs are properly addressed
- Teachers will use a range of teaching strategies:
  - Exposition by the teacher

- Practice and consolidation
- Practical work
- Discussion
- Problem-solving
- Investigative work

The choice of strategy will vary according to the age, ability, maturity and interests of the children

- Teachers recognise the vital importance of discussion to gain understanding, and to this end a sensible level of work-focussed conversation will be a feature of most lessons
- Teachers will ensure that the activities which the pupils experience in mathematics will enable them to develop the statutory Thinking Skills and Personal Capabilities set out in the NI Curriculum:
  - Thinking, Problem-Solving and Decision Making
  - Managing Information
  - Being Creative
  - Self-Management
  - Working with Others
- Teachers will ensure that the activities which the pupils experience in mathematics will also enable them to develop the statutory Cross Curricular Skills set out in the NI Curriculum:
  - Communication
  - Using Mathematics
  - Using ICT

## TEACHING TIME

To ensure that there is adequate time for developing numeracy skills, each class teacher will provide a daily lesson for mathematics, which will last about 45 minutes in the Foundation Stage and Key Stage 1, and 50 to 60 minutes in Key Stage 2.

Pupils will also be given opportunities to transfer their mathematical understanding to other contexts across the curriculum.

## LESSON STRUCTURE

A typical lesson will be structured as follows:

- Oral work and mental calculation (about 5 to 10 minutes)  
Whole class work to rehearse, sharpen and develop mental and oral skills
- The main teaching activity (about 30 to 40 minutes)  
Teaching input and pupil activities. Work as a whole class, in groups, in pairs or as individuals
- A plenary to round off the lesson (about 10 to 15 minutes)  
Work with the whole class to sort out misconceptions and identify progress, to summarise key facts and ideas and what to remember, to make links to other work and discuss the next steps, and to set homework.

## **“USING MATHEMATICS” ACROSS THE CURRICULUM**

The Northern Ireland Curriculum identifies “Using Mathematics” as one of the three cross curricular skills that children require for lifelong learning and for operating effectively in society, It is “ the skill of applying mathematical concepts, processes and understanding appropriately in a variety of contexts”.

Although our pupils will mainly acquire and consolidate their mathematical knowledge, concepts and skills during their mathematics lessons, they will also be given opportunities to transfer their understanding, as appropriate, to other contexts across the curriculum.

## **USING ICT**

Relevant “Better Numeracy” Characteristics:

ICT:

- The children’s experiences in the use of ICT to support mathematics and numeracy are carefully planned, appropriately supported and evaluated.
  
- Interactive whiteboards (IWBs), websites and learning platforms are used by children and teachers to explore, express, evaluate, exchange and exhibit understanding
- and learning.
  
- Mathematics-based computer programs are used effectively to:
  - engage the interest of the children
  - draw out connections between different aspects of mathematics
  - consolidate further the children’s understanding of important concepts
  - extend their skill at problem-solving

In the NI Curriculum, ICT is not a separate learning area. Rather its role can be considered as a tool by which teaching and learning can be enhanced. This is very applicable in Mathematics, eg.

- Number Facts
- Graphical Representation

- Concept of angle
- Co-ordinates
- Ordering measures
- Organising and interpreting data

In St Mary's the staff will use a variety of ICT activities as part of the range of mathematical experiences which the children participate in. We believe that effective and appropriate use of ICT in mathematics can:

- facilitate a differentiated pace and level of learning that takes account of individual pupil abilities, including those who are more able
- help provide appropriate support and scope for greater independence for children at of all abilities
- facilitate access to sources of information from across the world
- foster the development of information skills that teach pupils to be discriminating in their use of information and to be able to shape and present it in ways appropriate to the context
- increase motivation to learn
- provide a stimulating and non-threatening learning environment
- engage children more deeply in their learning

ICT plays an integral part in enhancing the teaching and learning in Mathematics and Numeracy. The pupils develop their ICT skills in maths lessons by making use of:

- Interactive Whiteboards;
- Internet Sites;
- Laptops;
- I-pads;
- Calculators;
- Roamer;
- Bee-Bots;
- Digital Media.

## **THINKING SKILLS AND PERSONAL CAPABILITIES**

Opportunities for the pupils to develop thinking skills and personal capabilities in their mathematics lessons are planned for by the individual teachers as part of their medium term planning. Children are given worthwhile experiences which allow them to develop skills in:

- Thinking, Problem-Solving and Decision- Making;
- Self-Management;
- Working With Others;
- Managing Information;
- Being Creative.

## **PROGRESSION AND CONTINUITY**

The pupils' learning in Mathematics and Numeracy will develop through a line of progression as expressed in the school's schemes of work. Learning Intentions will be set and met through the delivery of differentiated lessons. The statutory requirements for Mathematics and Numeracy outlined in the Northern Ireland Curriculum and CCEA's Lines of Development form the basis of the schemes of work.

All classes will experience the same range of teaching strategies and learning experiences. All planning will be through the schemes and notes. These are evaluated by the teachers at the end of each topic.

## **DIFFERENTIATION**

Differentiation is necessary for children to progress at their own pace, therefore activities are planned to match ability levels. Various methods of differentiation are used.

## **SPECIAL EDUCATIONAL NEEDS**

In St Mary's we identify pupils having difficulty in Numeracy based on teacher observation in the early years. Further in their education (P3), children complete standardised assessments. Analysis of the results, plus teacher observation may lead to additional support in class or through withdrawal.

## **EQUAL OPPORTUNITIES**

Every child, regardless of gender, will be given the opportunity to develop their full mathematical potential. Equal opportunities are provided for boys and girls and this is monitored by analysing pupil performance throughout the school to ensure there is no disparity.

## **HOMEWORK**

Maths homework is used to reinforce the learning in class. It will include practical activities, written activities and in some cases, rote learning activities.

## **ASSESSMENT**

Assessment is an integral part of our teaching and learning and is a continuous process. We strive to make our assessment purposeful, using it to inform our planning, to help in identifying any difficulties children may be experiencing in their mathematical understanding and in assisting us to

evaluate the quality of teaching and learning. Assessment Coordinator will meet with Literacy and Numeracy Coordinators following standardised testing and together will inform staff, and discuss and agree areas for targeting

Assessment mainly takes place during mathematics lessons but other forms of formative assessment such as weekly and end of topic check-ups are also used. More formal assessments, including standardised tests, are also carried out during the academic year for P3 to P7. Accurate information will then be reported to parents/guardians and to the child's next teacher.

## **RECORD KEEPING**

Individual pupil files are kept containing standardised tests carried out. Their Pupil Profiles also contain their annual reports. These are passed on at the end of each year to the next class teacher.

## **TARGET SETTING**

Relevant "Better Numeracy" characteristics:

Assessment:

- The strengths and difficulties which individual children experience are diagnosed regularly and this profile is used to inform the children's subsequent learning programmes.
- The progress of each child is very carefully tracked and monitored.
- The outcomes from monitoring and evaluation and the analysis of data are used effectively to inform target-setting at individual, group and class level.

We use the results of Assessment as a vehicle for setting performance targets.

These targets are arrived at through consideration of each child's performance to date, their PTM standardised scores for mathematics in previous years.

These Targets are then compared with the actual %s achieved in KS1 and KS2 Assessment in May.

## **Identifying and Addressing Underachievement**

Relevant “Better Numeracy” Characteristics:

Leadership and Management

- The school uses the teachers’ knowledge and experience, as well as a wide range of standardised tests, to identify early those children requiring additional help in mathematics, and provides appropriate and effective intervention to support them.

As stated above we consider it to be absolutely essential that each and every pupil fulfils their full potential as a learner of mathematics. To this end we aim to identify any pupils who are under-achieving, and to ensure that an appropriate remediation process is set in place, based on specific identified areas for improvement. Every pupil’s current PTM (Progress in Maths) standardised score is compared with their most recent NNRIT (Non-reading Intelligence Test) standardised score. If a pupil’s PTM score is 10 or more points below their NRIT score, this is an indication that the pupil is under-achieving in mathematics.

When individual pupils are indentified in this way, extra support is provided to ensure that the pupil achieves in line with their potential.

## **MENTAL MATHS**

Relevant “Better Numeracy” characteristics:

Learning and Teaching:

- The teachers make effective use of routines and incidental opportunities to promote mental mathematics.
- The children are given appropriate time and encouragement to communicate and explain their mathematical thinking, to articulate the processes they use, to ask questions and to talk about their learning.
- The children can draw effectively on a range of mental mathematics strategies; they are flexible in their mathematical thinking.

At St Mary’s we recognise the vital importance of a child’s ability to calculate mentally. We believe that an ability and inclination to calculate mentally leads to greater proficiency and understanding in all areas of Mathematics, and is a crucial skill in the application of mathematics in the world outside the classroom.

We will strive to ensure that:



- Children build up a bank of number facts which they know off by heart, to include addition, subtraction, multiplication and division facts
- Children are able to use these known facts to perform an increasing range of calculations in their heads, using a variety of methods
- Children build up a good understanding of the Number System, based on Place Value of Base 10

In order to facilitate this, teachers will:

- Ensure children are taught a minimum of 10 minutes mental maths per day
- Implement a structured progression of mental maths, based on specific intended learning outcomes
- Regularly assess children's achievement of these learning outcomes
- Use a variety of teaching activities, including mathematical games and ICT, in whole class, group and individual work

## **LEADERSHIP AND MANAGEMENT OF NUMERACY**

Relevant "Better Numeracy" Characteristics:

### **Leadership and Management:**

- Numeracy is prioritised within the School Development Plan (SDP) and supported by an appropriate Action and Outcome Plan (AOP).
- The Numeracy AOP has a clear focus on learning and teaching and the improvement of the children's standards and achievements.
- The numeracy co-ordinator/leader is a role-model for good practice, has a clear vision for the development of mathematics and provides excellent leadership, focused on ensuring that high quality learning experiences are provided for all children.
- The teachers have a sound mathematical knowledge; there is a shared understanding of pedagogy and stages of conceptual development.
- There is structured, effective monitoring and evaluation of the quality of numeracy provision and learning across the school; this includes scrutiny of the planning and children's written work, observation of lessons and effective analysis of data.

- The analysis of data is used effectively to identify priorities for whole-school development.
- Staff development needs are identified and there is effective dissemination of best practice within numeracy.

In St Mary's we have a member of staff who fulfils the role of Numeracy Co-ordinator, who has responsibility for the management of numeracy development within the school. Specifically these responsibilities include:

- In collaboration with the rest of the teaching staff, identifying priorities for development within numeracy
- Contributing to the production of the School Development Plan, if it is to include Numeracy Development
- Producing Action and Outcome Plans to address these issues
- Monitoring and Evaluating the implementation of these Action Plans and the achievement of their Success Criteria
- In conjunction with relevant teachers producing annual targets for standards achieved in Statutory Assessment
- Monitoring and Evaluating pupil achievement, and producing whole school performance data from these results
- Updating the School Numeracy Policy, to keep in line with curriculum changes
- In conjunction with the whole staff, participating in a programme of self- evaluation of the quality and effectiveness of numeracy provision
- Organising and leading school based INSET and School Development Days

## **REPORTING TO PARENTS/GUARDIANS**

St Mary's views its relationship with parents and guardians as being a valuable interactive partnership working together for the good of the child. We operate an "open door" policy, welcoming parents/guardians to discuss any concerns they may have about their children's progress.

Parent interviews are held in Term One for P2- P7, and in early January of Term two for parents of P1.

A written report is also provided at the end of June and includes the teacher's assessment of progress made in Mathematics and Numeracy.

## **ACTION PLANNING**

The whole school area of focus for the academic year 2022-23 is Processes and Problem Solving in Mathematics. In order to further the pupils' knowledge, skills and understanding in this area, the coordinator has provided guidance and resources to allow for opportunities to develop mental maths and problem solving strategies.

## **MONITORING AND EVALUATION**

Overall Monitoring and Evaluation will be carried out by the Mathematics and Numeracy Coordinator and the Principal. This will include reflecting on the pupils' work in class.

### **MONITORING and EVALUATING CHILDREN'S WORK**

Relevant "Better Numeracy" characteristics:

Assesment:

- The children are aware of the intended learning outcomes, share in the development of success criteria and use them to evaluate the extent of their learning.
- There is good formative marking of the children's oral and written work; children are given clear oral or written advice on what they need to do to improve.
- The strengths and difficulties which individual children experience are diagnosed regularly and this profile is used to inform the children's subsequent learning programmes.
- The progress of each child is very carefully tracked and monitored.
- The assessment outcomes are used to good effect by individual teachers to evaluate the effectiveness of their own practice.
- The outcomes from monitoring and evaluation and the analysis of data are used effectively to inform target-setting at individual, group and class level.

Learning and Teaching:

- The teachers build effectively on the children's previous knowledge and experience.
- The teachers have realistically high expectations of what the children can achieve; the children are challenged to extend their learning and appropriate support is provided when children are experiencing difficulties;
- The teachers use the learning intentions and success criteria throughout the lesson to focus the children's attention on and consolidate learning.
- The children's mathematical knowledge and skills are developed systematically across the school.
- The children make good year-on-year progress.

This section details the various assessment methods and practices used in St Mary's through which we ensure that children are making appropriate progress and that the activities they take part in are suitably matched to their ability and level of development.

Assessment is an integral and continuous part of the teaching and learning process at St Mary's and much of it is done informally as part of each teacher's day to day work. Teachers continually assess children's performance and progress, and the effectiveness of their teaching approaches and strategies. Teacher's planning is based upon the identification of Learning Intentions for the children; assessment is therefore based upon deciding the extent to which Learning Intentions have been achieved. Information is gathered in a variety of ways:

- Discussion between child and teacher
- Observation whilst children are participating in activities
- Marking written work produced by the children as a result of a mathematical activity

Feedback is given to pupils, giving clear guidance as to how their learning can be improved. More formal methods are used to determine the levels of achievement of children at various times during the school year:

- Assessment for Learning. Teachers ensure that all pupils are actively involved in their own learning through an Assessment for Learning approach:
  - Learning Intentions are shared and discussed with pupils to ensure that they clearly understand the actual learning which should take place.
  - Success Criteria are discussed and agreed, so that pupils are aware of the standards by which their work will be assessed, and will be able to evaluate the quality of their own work against the agreed Success Criteria
  - Feedback, both oral and written, is given to pupils which details how they can improve their learning by reference to the agreed Success Criteria
  - Assessment outcomes are used by the teacher to inform future planning
  - Pupils are given regular opportunities to
    - assess their own and their peers work
    - evaluate the quality and extent of their own learning

- set their own goals for improvement, and evaluate their achievement of these goals
- Standardised Testing. P T Maths (GL Assessment) standardised tests are used once a year, towards the end of the year. They allow the school to measure each child's attainment in all areas of mathematics, and compare this with an "average" for children of that age. The results are used to monitor individual's progress year on year, to rank order a class and to identify those children who have Special Needs in mathematics. Individual results are also aggregated, to allow the school to identify strengths and areas for improvement in the provision for mathematics across the whole school, across individual Key Stages and within particular groups and classes.

## **EVALUATION OF MATHEMATICS TEACHING**

Relevant "Better Numeracy" Characteristics:

Planning:

- The teachers take account of the previous learning and uses this information to inform their planning.
- The teachers evaluate regularly the quality and extent of the children's learning and use the outcomes to inform their future planning.

Assessment:

- The assessment outcomes are used to good effect by individual teachers to evaluate the effectiveness of their own practice.

Leadership and Management:

- There is structured, effective monitoring and evaluation of the quality of numeracy provision and learning across the school; this includes scrutiny of the planning and children's written work, observation of lessons and effective analysis of data.
- The analysis of data is used effectively to identify priorities for whole-school development.

In St Mary's PS we are committed to a process of continuous improvement, based around the four characteristics of a successful school as set out in "Every School a Good School- a Policy for School Improvement" (DE 2009) :

- Child Centred Provision
- High Quality Teaching and Learning
- Effective Leadership
- School Connected to its Local Community

We believe that constant self-evaluation of our provision for Numeracy is the most effective way of ensuring we provide high quality teaching and learning experiences for our children, and that all our children realise their full potential in Numeracy.

Self evaluation takes place on two levels:

- Each class teacher monitors and evaluates their own teaching on an ongoing basis. This involves judging whether children are achieving intended learning outcomes, and the information generated is used to gauge the effectiveness of the teaching approaches used and to inform planning for further teaching.
- The Numeracy Coordinators lead the monitoring and evaluating of the whole school's provision of numeracy through:
  - Monitoring implementation of Numeracy Action and Outcome Plans
  - Evaluating the achievement of Success Criteria contained within Action and Outcome Plans
  - Detailed analysis of pupil performance data from standardised assessment and statutory assessment outcomes
  - Leading an on-going, collegial approach to whole school self-evaluation referenced to examples of effective practice as detailed in "Better Numeracy" (ETI 2010), using a process based upon agreed quality indicators taken from "Together Towards Improvement" (ETI 2010)

### **Cross Curricular Skills: Using Mathematics across the Curriculum**

Using Mathematics is the skill of applying mathematical concepts, processes and understanding appropriately in a variety of contexts. Ideally these should be relevant to real life situations that require a mathematical dimension. Children are likely to acquire and consolidate their mathematical knowledge, concepts and skills within the Area of Learning for Mathematics and Numeracy. However they should be given opportunities to transfer their understanding, as appropriate, to other areas of the curriculum. Children can demonstrate their mathematical knowledge, understanding and skills in a variety of ways to communicate, manage information, think critically, solve problems and make decisions. Some of these include:

#### Literacy

- Sequencing events in daily routines
- Accessing information from tables
- Reading material involving times, dates, shapes, positional prepositions (behind, underneath etc), comparative language (taller, heavier etc)
- Talking and Listening skills resulting from mathematical discussions

## The World Around Us

- Comparative language
- Estimating and Measuring skills
- Handling Data ( eg displaying the results of an experiment in graphical form)
- Carrying out surveys
- Sorting materials according to properties
- Accessing information from tables, charts and graphs
- Positional language
- Directions
- Points of Compass
- Coordinates
- Scale in maps and plans
- Estimating and Measuring skills
- Timelines and sequences
- Accessing information from tables, charts and graphs
- Accessing information from computer databases
- Carrying out surveys and interpreting and displaying results

## Physical Education

- Directions and movement
- Positional language
- Shape and symmetry
- Timing events
- Measuring events (eg furthest long jump)

## History

- Timelines and sequences
- Accessing information from tables, charts and graphs
- Measuring (eg for a WW 2 Recipe)
- Accessing information from computer databases

## The Arts

- Shape and symmetry
- Repeating patterns
- Language to describe 2D and 3D shapes
- Tessellating designs
- Proportion

## **REVIEW PROCEDURES**

This Policy is designed to reflect current practice within the school environment. Although the overall aims for Numeracy teaching and learning are likely to remain fairly constant, the practices evolve over time as the school progresses in its development of Numeracy provision.

Accordingly this Policy is under a process of constant review and will be updated regularly to ensure it continues reflect current practice and to achieve its designated purposes.



