

St. Jarlath's P.S. Blackwatertown



Numeracy/Using Mathematics

INTRODUCTION

This policy will set out the agreed key principles and practices that guide the development of numeracy in our school, drawing on the indicator of effective provision from “Every School a Good School”.

At St Jarlath’s we believe that numeracy skills are the key to future educational success and to ensuring that each child has the opportunity to develop as an individual, as a contributor to society and as an a contributor to the economy and environment.

“We have adopted the definition of Numeracy from “Count, Read: Succeed” (para. 1.10)

The ability to apply appropriate mathematical skills and knowledge in familiar and unfamiliar contexts and in a range of settings throughout life, including the workplace. It involves the development of:

- A. An understanding of key mathematical concepts and their inter-connectedness
- B. Appropriate reasoning and problem-solving
- C. The proficient and appropriate use of methods and procedures (formal and informal, mental and written)
- D. Active participation in the exploration of mathematical ideas and models”

Teachers of St Jarlath’s P.S. accept the above definition of numeracy. They realise that there is a substantial overlap in the definition of mathematics and numeracy. The term numeracy brings with it connotations of real-life applications and the use of mathematics as a natural tool throughout the curriculum rather than something set apart. As such, mathematics becomes a key skill in the curriculum and also a life skill. Teachers believe that numeracy emphasises an explicit cross-curricularity for mathematics which will benefit the whole curriculum and which will increase meaning and motivation for pupils in using mathematics as well. The promotion of numeracy is the responsibility of all teachers.

AIMS

These are the aims, which the staff have agreed, are realistic and appropriate for our pupils. They represent the benefits which our pupils can expect to gain as a result of learning mathematics in St Jarlath’s P.S. They form a set of basic principles upon which the teaching of mathematics in our school is based.

- To ensure that every pupil fulfils their full potential as a learner of Mathematics/Numeracy.
- To foster a positive attitude to Mathematics/Numeracy as an interesting and attractive part of the curriculum.
- To develop a deeper understanding of Mathematics/Numeracy through a process of enquiry and investigation.
- To develop and understanding of the connectivity of patterns and relationships within mathematics.

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- To develop the ability to apply knowledge, skills and ideas in real life contexts outside the classroom and become aware of the uses of Mathematics/Numeracy in the wider world.
- To develop the ability to use Mathematics/Numeracy as a means of communicating ideas.
- To develop an ability and inclination to work both alone and cooperatively to solve Mathematical/Numeracy problems.
- To develop personal qualities such as perseverance, independent thinking, cooperation and self confidence through a sense of achievement and success.
- To develop and appreciation of the creative aspects of mathematics and an awareness of its aesthetic appeal and in so doing create a numeracy rich environment.

These basic principles are designed to contribute towards the achievement of the overall aim of the Northern Ireland Curriculum:

“To empower younger people to develop their potential and to make informed and responsible decisions through their lives as individuals, as contributors to society and as contributors to the economy and the environment.

CHILD CENTRED PROVISION

The following Every School a Good School (ESaGS) in our provision for Mathematics and Numeracy:

- Decision on planning, resources, curriculum and pastoral care reflect at all time the needs and aspirations of the pupils within the school
- A clear commitment exists to promoting equality of opportunity, high quality learning, and 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
- There is a commitment to involve young people in discussions and decisions on school life that directly affect them and to listen to their views

HIGH QUALITY TEACHING AND LEARNING

The following ESaGS indicators will be reflected in our provision Mathematics and Numeracy:

- A broad and relevant curriculum is provided for the pupils.
- 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 are used to effectively inform teaching and learning across the school and in the classroom to promote 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.

TEACHING APPROCHES

Although each teacher is an individual, with their own personal style of teaching, the staff has agreed that the following points will be a feature of all teaching in Mathematics/Numeracy in St Jarlath's P.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/numeracy a relevant and satisfying part of their school experience
- Teachers will ensure that children make appropriate progress in their acquisition of 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:
 - Modelling 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/Numeracy will also enable them to develop the statutory Cross Curricular Skills set out in the NI Curriculum:
 - Communication
 - Using Mathematics
 - Using ICT

CONTINUITY AND PROGRESSION

Continuity and Progression refers to the intentions of the school that each child has the opportunity to develop mathematical skills and understanding over time in the most effective manner possible. In order for continuity and progression to occur, staff has agreed:

- The curriculum the children follow is defined the CCEA Lines of Development, which is based upon the progression in each of the 5 areas of mathematics contained within the NI Curriculum.
- The Yearly Overviews are planned collaboratively to ensure there are no gaps or unnecessary overlaps, but progression as the children move through the school. These identify the content from each area of mathematics to be taught within each term.
- The Half Termly planning details agreed teaching approaches and methodologies in all areas of maths.
- All new ideas and concepts which the children encounter will be introduced from a starting point within the child's knowledge and understanding.
- Assessment is designed to allow the teachers to accurately identify the child's present level of understanding so as to allow appropriate further work to be planned.

- Activities in mathematics will be differentiated so that children are always working at a pace and level of challenge which matches their ability.
- Planning will be regularly monitored by the Numeracy Coordinator to evaluate the levels of continuity and progression achieved.

MOTITORING AND EVALUATING CHILDREN’S WORK

Assessment is an integral and a continuous aspect of the teaching and learning process at St Jarlath’s P.S. Much of the assessment occurs informally as part of each teacher’s day to day work. (See St Jarlath’s P.S. Assessment/Marking Policy) Feedback is given to pupils, giving clear guidance as to how their learning can be improved. More Formal methods of assessment are used to determine the levels of achievement of children at various times during the school year:

- Class tests: These are used throughout the school. Class tests are usually used at the end of a particular topic, to assess achievement of individual’s skills/knowledge/understanding which has been taught within that topic. A continual pupil profile is created based on the ½ termly planners.
- 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 achievements of these goals
- **Standardised Testing**: Progress in Maths (GL Assessment) standardised tests are used once a year, PIM (P3-P7) 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 of improvement in the provision for mathematics across the whole school, across individual Key Stages and within particular groups and classes.
- **The school is in the process of considering changing to Progress Test in Maths (June 2015)**

- **Statutory End of Key Stage Assessment:** This is a statutory requirement at the end of Key Stage 1 (P4) and at the end of Key Stage 2 (P7) that each child following ongoing assessment is assigned a Level of Attainment for each of the 2 areas of mathematics.

RECORD KEEPING

A record of achievement of Mental Maths Core Competences is passed on from each teacher and used to inform teaching and learning.

TARGET SETTING

We use the results of Statutory Assessment as a vehicle for setting performance target for mathematics. Each September the relevant teachers meet and share information eg PIM, related to individual children's learning to date and undertake a process to set targets for:

KS1

% of children achieving Level 2 and above

KS2

% of children achieving Level 4 and above

These Targets are then compared with the actual % achieved in KS1 and KS2 Assessment in May, benchmarked to schools of similar Free School Meals (FSM) and the N Ireland average.

Each year group set targets based on children's achievement. Relevant data eg pre-school information, PIM, Mental Maths Competencies, Computerised Assessment and NRIT feed into whole school targets for improvement in Mathematics/Numeracy.

In St Jarlath's P.S. 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 eg Catch Up in Number, based on specific identified areas for improvement. Every pupil's current PIM (Progress in Maths) standardised score is compared with their most recent NRIT (Non-reading Intelligence Test) standardised score. If a pupil's PIM score is 10 or more points below their NRIT score, this an indication that the pupils in under-achieving in mathematics. This is monitored from year to year.

CALCULATORS

Our Mental Maths progression sets great value and importance on children knowing appropriate number facts off by heart, and being able to use a variety of strategies to calculate in their heads. We also believe it is vital that children are able to perform pencil and paper calculations efficiently and effectively, which is reflected in our yearly overviews for Mathematics/Numeracy. We also recognise, however that calculators are widely used in everyday life and we strive to ensure that the children

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are able to use a calculator efficiently and effectively. To this end, children in St Jarlath's P.S. will at a level matched to their mathematical progress:

- Explore the use of calculators through play and number games
- Check the calculator result, estimating before calculating and / or by performing an inverse operation
- Interpret a calculator display eg in the context of money, or where decimal numbers are involved
- Use calculators in real-life problem solving activities, where the data used will not be so amenable to written or mental calculations. In these situations the emphasis is on selecting the appropriate calculation more than the actual working out of the calculation.
- Use calculators in investigative work eg trying lots of examples to find patterns using trial and improvement methods to find an answer. Here the calculator supports rather than replaces mathematical thinking.

MENTAL MATHS

At St Jarlath's P.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 strive to ensure:

- 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 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.

Current practice for mental maths

- Mental maths activities are taught on a daily basis for ten to twenty minutes.
- All teachers concentrate largely on the whole class teaching of mental maths and incorporate opportunities for group work, paired work and individual activities when applicable.
- Children record mental maths calculations using specific workbooks, and activities are assessed in written and oral form on a weekly, termly and when appropriate, topic basis.
- Mental maths planning is integrated into weekly planners and is structured and progressive and based on specific intended learning outcomes.
- Each year group has specific set of core competences to work on in mental maths and progression in these are monitored and recorded and kept for reference and used for forward planning.

- All teachers use a wide and varied bank of resources to support mental maths. These range from mathematical games and interactive websites resources, to iPad apps and flipcharts. Children from Primary 4 to Primary 7 also have access to ALTA maths.

ICT (See also St Jarlath's P.S. ICT Policy)

In St Jarlath's P.S. we 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 of all abilities.
- Facilitate access to sources of information from a wide variety of resources.
- 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.

In St Jarlath's P.S. ICT activities will include:

- Whole class or group work, often led by the teacher. These involve the use of an Interactive Whiteboard which is used as a direct teaching aid, used to demonstrate ideas and promote discussion and clear mathematical thinking.
- Individual or small group activities. These usually involve the children working independently at a computer, usually to complement current work on a particular topic.

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.
- Governors understand their responsibilities and provide clear strategic direction as well as support and challenge to the Principal in carrying forward the process of improvement.
- 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.

- Teachers are given the opportunity to share in the leadership of the school.
- 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.

SPECIAL EDUCATIONAL NEEDS

(See St Jarlath's P.S. Special Needs Policy)

LEADERSHIP AND MANAGEMENT OF NUMERACY:

Mr C Mc Kenna (in post for 1 year)

In St Jarlath's P.S. Mr C Mc Kenna fulfils the role of Numeracy Coordinator and 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 Mathematics/Numeracy.
- Contributing to the production of the School Development Plan, if it is to include Mathematics/Numeracy Development.
- Producing Action 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 Programme of Study, and School Mathematics/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 Mathematics/Numeracy provision.
- Organising and leading school based INSET and School Development Days.
- Liaising with SELB CASS services to ensure staff receives suitable and sufficient support and training.
- Maintaining a file of evidence indicating standards achieved within the school.
- Providing support to all members of staff.
- Discuss developments/issues with the SMT and lead school Numeracy Team.

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ROLE OF PARENTS

In St Jarlath's P.S. we believe that parents have a vital role to play in ensuring their children make appropriate progress and realise their potential in mathematics. We actively seek strong partnerships with parents and will work to ensure that parents feel involved in their child's education.

In St Jarlath's P.S. parents will:

- Be able to discuss their child's progress in mathematics, or any areas of concern, at any time during the year by appointment with the class teacher.
- Be invited to meet more formally with the class teacher once per year at Parent / Teacher interview.
- Receive one written report on their child's strengths, areas for improvement and progress per year, usually in June.
- Be encouraged to participate with their children in mathematical homework activities.
- Attend our parental information meeting for numeracy which is designed to support their children's learning.
- Have the opportunity to observe high quality mathematics learning and teaching via the school website.

EVALUATION OF MATHEMATICS TEACHING

In St Jarlath's P.S. we are committed to a process of continuous improvement. We believe that constant self-evaluation of our provision for Mathematics/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 Mathematics/Numeracy.

Self evaluation takes place on two levels:

- Each class teacher monitors and evaluates his/her own teaching on an ongoing basis. This involves assessing children's achievement of intended learning outcomes. The information generated is used to determine the effectiveness of the teaching approaches used and to inform planning for further teaching and learning.

The Numeracy Coordinator leads the monitoring and evaluating of the whole school's provision of mathematics/numeracy through:

- Monitoring - implementation of Mathematics/Numeracy Action Plans
- Evaluating – the achievement of Success Criteria contained within Action Plans.
- Coordinating self evaluation through monitoring of the Half Termly planning.
- Monitoring the results of Statutory Assessment at KS1 and KS2 using benchmarked performance data.
- Detailed analysis of pupil performance data from standardised assessment and statutory assessment outcomes.

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- Leading an ongoing, collegial approach to whole school self-evaluation.

In St Jarlath's P.S. self evaluation is an ongoing process which is a component of our cycle of development. The information gained through self evaluation feeds back into the cycle to enable us to plan for future improvement and determine training and development needs.

REVIEW PROCEDURES

This policy is designed to reflect current practice within the school environment. Although the overall aims for Mathematics/Numeracy teaching and learning are likely to remain fairly constant, the practice evolves over time as the school progresses in its development of Mathematics/Numeracy provision. Accordingly this Policy is under a process of constant review and will be updated regularly to ensure it continues to reflect current practice and to achieve its designated purposes. The Policy is agreed with Pupils, Parents, Staff and Governors who will have access to this document.

Review date: June 2016