

Mount Pleasant Primary School



Mathematics Policy

1. Title of policy	Basic Skills
2. Date adopted by Governors	Spring 2017
3. Name of Chair of Governors	Stewart Jarvis
4. Name of Head teacher	Lorrian Capener
5. Person or team responsible for the document	Sharon Derbyshire
6. Planned date for review.	Spring 2021

Mount Pleasant Primary School aims to provide all children with a broad and balanced mathematics curriculum which relates closely to the whole school philosophy for teaching and learning. It has been developed to fully deliver the statutory requirements of the Early Years Foundation Stage and the National Curriculum 2014. This Policy has been produced in consultation with all staff members to ensure common aims and a whole school understanding of the importance of continuity and progression throughout the school. It is to be viewed as a working document and a practical support for teachers.

The school's aims are designed to ensure the needs of all children are met, taking account of gender, ethnicity, culture, religion, language, sexual orientation, age, ability, disability and social circumstances. It is important that we aim to meet the diverse needs of pupils to ensure inclusion for all and that all pupils are prepared for full participation in a multi-ethnic society.

Equality of opportunity at Mount Pleasant School is about providing quality and excellence for all in order to promote the highest standards of achievement. Equality of opportunity applies to all members of the Mount Pleasant community – pupils, parents, staff, governors and community members.

The school is aware that evidence has shown that girls can underachieve in this curricular area and special consideration will be given where necessary. Pupil's assessments are monitored using a range of criteria to ensure children are achieving their full potential.

The Role of the Mathematics Leader

The Mathematics Leader has a vital role in overseeing the curricular area, being responsible for the implementation, monitoring and review of the Policy Statement, Guidelines and Schemes of Work. The following need to be carried out on a regular basis; collating whole school planning, audits of children's work and moderation activities to ensure common understanding of progress and attainment. In addition to these responsibilities the leader needs to be available to support staff with planning and inform staff of current thinking and innovations.

In consultation with the Head teacher it is the responsibility of the Mathematics Coordinator;

1. To ensure that the statutory requirements of the National Curriculum for Mathematics are, at a minimum, being delivered.
2. To ensure the school Mathematics Policy Statement, Scheme and Guidelines are regularly reviewed and developed, to meet the needs of the school and the National Curriculum.
3. Through a variety of means, monitor, implement and develop mathematics teaching and learning throughout the school to ensure continuity and progression.
4. To act as an advisor or consultant to staff in the area of Mathematics when implementing schemes of work, policy and guidelines.
5. To be responsible for the auditing, ordering and distribution of resources; and encouraging safe and efficient storage of these.

6. To attend Mathematics coordinators meetings, relevant courses and keep abreast of any new innovations in the subject area and disseminate the relevant information to staff.
7. To be aware of individual staff strengths and provide opportunities for professional development through INSET and external courses when appropriate.
8. To discuss Mathematics when required at staff, parents and governors meetings.
9. To liaise with other Curriculum Coordinators, especially with those whose subject responsibility shares common content and related skills.
10. To demonstrate through planning, delivery and assessment, good practice.

Planning

The school understands the value of appropriate planning in mathematics since it is essential to ensure entitlement, progression, continuity and differentiation.

Each Year group; has a 'lead teacher' for mathematics, responsible for teaching and learning in this area. Children are taught in two main groups and may be organised into smaller working groups within these. This is driven highly by the needs, abilities and dynamics of each cohort of learners and may differ year to year.

Long Term Planning

Long term planning for all year groups is taken from the National Curriculum 2014 for Mathematics. Planning is monitored by the mathematics Leader, Deputy Head and Head teacher regularly. School strengths are highlighted and each year group is given areas to improve if appropriate.

Children will be taught mathematics using the structure and planning of the White Rose Hub 'Teaching for Mastery' documents 2015. Learning objectives and success criteria are shared with the class during the lesson and if appropriate children will be involved in the development of their own success keys.

Within the mathematics programmes of study there are several strands:

- Number and place value
- Addition and subtraction
- Multiplication and division
- Fractions, decimals and percentages
- Ratio and proportion (Year 6 only)
- Algebra (Year 6 only)
- Measurement
- Geometry – properties of shape
- Geometry – position and direction
- Statistics (from Year 2 onwards)

Short Term Planning

Short term planning is used for each of the programmes of study objectives within the National Curriculum. This planning is linked to the NCETM Mastery Approach for mathematics and is driven by the three aims of the National Curriculum; Fluency, Reasoning and Problem Solving. The emphasis on this planning is outcomes for learners

rather than content. 'Assessment for learning' principles are used constantly to inform future planning and to gather evidence.

Classroom Management

The school building is arranged in order to allow the children to be taught in National Curriculum Year groups. Each Year group has two named teachers (one in Nursery) and a member of the support team.

The physical environment of these areas is acknowledged by the staff to be very important in order to foster a productive setting for teaching and learning. There are a number of ways in which we try to achieve this.

Within each teaching base the furniture, such as tables, chairs etc. is selected so that it is an appropriate size and style for the age. It is not static and is able to be adapted to a variety of arrangements that best suit the age of the children and the types of activities in which they are involved. There is a focal point that can be seen from all areas; interactive whiteboard or whiteboard for instruction and demonstration.

Classroom organisation for mathematics will be such that the children are encouraged to show independence in choosing the resources or materials needed for a task. Across the school, the use of concrete resources is seen as pivotal to developing secure mathematical understanding. Each class has a base of practical mathematical resources that are accessible to all pupils. Pupils are encouraged to be self-sufficient in their selection of these as they progress through the school. These include:

- Number lines, number squares and multiplication grids
- Dienes and Base Ten
- Numicon
- Place value digit cards, fans, sliders, dice and counters
- Measuring equipment for mass, capacity, length, time and angles
- Counters, beads, cubes and unifix

In the EYFS, the development of mathematical thought is an important area of experience for children in the Early Years. Learning in mathematics should be primarily first-hand, experiential and active, bearing in mind the requirements of the National Curriculum Foundation Stage and also uses Vygotsky's principles of mathematics as the development of thinking and reasoning. Play and talk are essential to the learning process.

Display

Displays that encourage and develop mathematical ideas and concepts should be evident in all Year groups. Teachers and support staff work together to choose, arrange, mount and create stimulating and appropriate displays.

Displays should be vibrant, exciting, and informative and child centred. Mathematical vocabulary is very important and staff use key vocabulary for their Year group in displays as well as Year group expectations. 'Working Walls' are adapted with examples of good strategies (WAGOLL's), key vocabulary and examples of children's work.

Time Allocation

Each year group runs a two-week timetable. There is a planned lesson for at least four days with extra lessons to cover arithmetic and Maths Challenges. Maths Challenges are embedded for every year group and aim to develop fluency in arithmetic linked to the calculations objectives for each year group.

With the development of a cross-curricular approach to learning, it is anticipated that some of the mathematics teaching may be part of the Reading curriculum time allocation on timetables. However most mathematics teaching will be discrete.

Assessment, Recording and Reporting

Assessment (Refer to School Assessment Policy)

Assessment is a vital tool in the teaching of Mathematics, designed to monitor children's progress and measure attainment. It is also used to inform future planning by staff at this school or the child's next school.

At Mount Pleasant assessment is integral to planning, teaching, learning and evaluating in all Year groups.

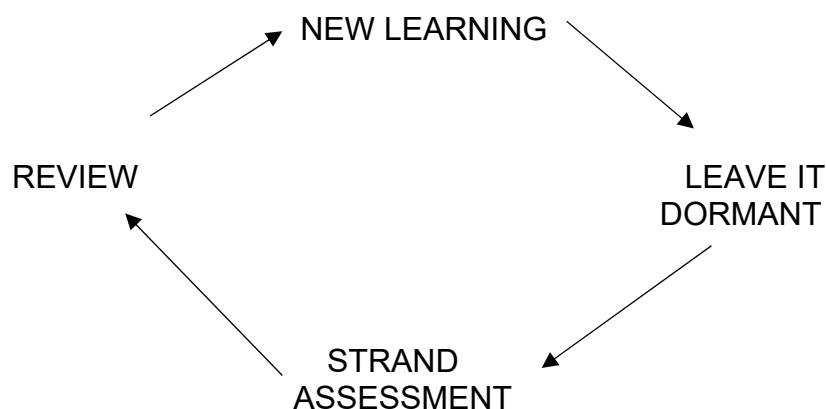
Assessment for learning is built into the planning of lessons and a range of other methods are used as appropriate. Assessment for learning is an ongoing process, is diagnostic and built into each lesson. Throughout the working day teachers are constantly assessing; they make many informal judgments whilst they are teaching relating to pupil performance. Notes will be taken to inform future planning and may also be used to update Learning Ladders.

The planning of mathematics in each year group follows the layout of the strands in the programme of study:

- Number and place value
- Addition and subtraction
- Multiplication and division
- Fractions, decimals and percentages
- Ratio and proportion (Year 6 only)
- Algebra (Year 6 only)
- Measurement
- Geometry – properties of shape
- Geometry – position and direction
- Statistics (from Year 2 onwards)

Each strand's objectives are covered until the majority of children have reached the expectations for the year group. The time for this will vary depending on prior learning and the abilities and needs of the cohort; there is no set time for each strand. The expectation is that teachers will 'Linger Longer' in learning in order to ensure concepts and skills are embedded. This approach allows children to apply skills to complex and challenging problems before moving onto new learning. Teachers use Testbase, NCETM, NRICH and Dudley Mastery documents to support their planning for mastery.

The assessment cycle for mathematics involves using formal assessment of strands for the programme of study. Teachers will use a combination of evidence from these, observations during lessons, discussions with children and independent work in books to judge children's ability to work within the expectations for their year group.



Teachers then use this evidence to highlight statements on Learning Ladders in a particular colour which makes monitoring progress easier:

Year 1 - Pink
Year 2 - Orange
Year 3 - Yellow
Year 4 - Green
Year 5 - Blue
Year 6 - Orange

Learning Ladders are used to help pupils understand how they are progressing in mathematics and gives them ownership of their learning. They are used to help pupils understand what the next steps are in their learning.

The ladders are organised to show progression within the programme of study for mathematics.

- Number and place value
- Addition and subtraction
- Multiplication and division
- Fractions, decimals and percentages
- Ratio and proportion (Year 6 only)
- Algebra (Year 6 only)
- Measurement
- Geometry – properties of shape

- Geometry – position and direction
- Statistics (from Year 2 onwards)

Because the strands are taught in sequence it is important to understand that the assessment and monitoring of progress must be judged over the whole year. Most year groups will deliver and assess three to four strands over a term, so progress in some strands will not be assessed or recorded until the end of the year.

At the end of Key Stage 1 and Key Stage 2, the National Curriculum requires the formal statutory assessment of all pupils. In both key stages there are tests in arithmetic and mathematical reasoning. Children are given a total score which is then converted to a scaled score. This is then used to judge progress and attainment across Key Stage 2. The results of these assessments are collated and at the end of Key Stage 2 reported in Dudley and National league tables.

Recording

The recording of pupil's learning in mathematics is recorded within their Learning Journey. The Learning Journey contains evidence of a pupil's performance within Mathematics. This will include previous completed mathematics workbooks, completed Learning Ladders, photographs and examples of work and merit cards which all show progress made over a period of time.

The day to day record of children's experiences and achievements are recorded in note form through observations, marking or questioning.

This evidence is used to update children's individual Learning Ladders if it shows independent choice.

As the recording of work in the Foundation Stage and Key Stage 1 is minimal, these observations are vital for future planning and reporting to parents. In Key Stage 2, children's books are also used as an indicator of performance and understanding.

Results of all teacher assessments are kept on the schools MIS (Integris) system for monitoring and evaluation by staff. Staff are responsible for the input of data relating to their class at the end of each term.

Reporting

Learning expectations are shared with parents and pupils across the school; although this will obviously be adapted to suit the age and needs of the child. During Open Evenings, children are invited along with their parents to discuss their own progress and learning. Parents are also invited into school to share their child's Learning Journey.

Each term there is an 'Assessment Week' where staff spend time carrying out formal strand assessments, updating Learning Ladders and observing children in practical problem solving activities

Annual reports are produced at the end of the year using a standard statement related to expectations for each year group in mathematics. This statement is then adapted according to the progression of each child. These are shared and discussed with parents at open evenings.

The school recognises the importance of communicating information to all members of staff. At the end of each year, data collected is passed on to future teachers of each year group. This helps to ensure continuity and progression of learning throughout the school.

Teaching and Learning

Children learn through an active process of constructing ideas. I.e. they acquire knowledge and skills in order to develop their understanding. They learn by connecting their new experiences to those they already have. Since learning is an active process the teaching must reflect this. It will be based on first-hand experience where pupils can explore a balanced variety of tasks and activities discussing, investigating and questioning in a wide range of contexts. There will be a variety of teaching strategies used and opportunities for whole class lessons, group activity, paired and individual work. There will be continuity, progression and differentiation throughout the Key Stages. Children will be taught a variety of mathematical approaches to solving problems. They are encouraged to develop their own mathematical strategies as well as learning standard methods. (See Teaching and Learning Policy: A Mastery Approach)

At Mount Pleasant, Mathematics teaching uses a range of teaching and learning strategies including demonstration and modelling by the teacher using interactive whiteboard to include:

- directing - sharing the teaching and learning objectives, drawing attention to particular points
- instructing - giving information on how to do a particular process/activity
- demonstrating - showing, describing and modeling mathematics
- explaining and illustrating - accurate, well-paced explanations referring to previous work or methods
- evaluating pupils' responses - identifying mistakes and using them as positive teaching points
- summarising - reviewing during the lesson what is being taught/learned
- discussion between teacher and pupils
- interactive involvement of pupils through carefully planned questioning
- appropriate practical work
- consolidation and practice of fundamental skills, vocabulary and routines
- problem-solving, including the application of Mathematics to everyday situations
- investigational work
- rehearsal of mental strategies

Resources

Over the years the school has built up many valuable resources for the teaching of Mathematics. These resources can be divided into two groups; Publications e.g. Schemes, worksheets, text books and ideas, and Practical Equipment e.g. counters, 2D and 3D shapes, measuring equipment etc. Resources in school are allocated and stored in a number of ways.

Publications

Published material, when specific to a Year group, is distributed to the relevant teachers. It is their responsibility to ensure these are kept in good order. They must be left in that Year group should any staffing changes occur. These should be made available to other members of staff on request. Teachers may build up a bank of resources that can be used for their Year should they wish. The school does not rely on any published scheme; teachers use the most appropriate resources for their lesson and pupils.

Publications that are appropriate for the whole school are located within the resource area in the staffroom. They are loaned or referred to whenever necessary.

Practical Equipment

Each year group has a mathematics resource area where basic resources needed to deliver the curriculum are organised in order to enable free choice for children. It is expected that children are encouraged to be independent learners and choose equipment and resources dependent on the task. In the Foundation Stage all resources are class based. These resources will include 100 squares, number lines, number fans, counters, beads, Numicon, rulers, mirrors, place value cards and sliders, dice etc.

From Nursery, children are taught how to choose and use appropriate resources to support their mathematical development. These are highly visible within each classroom and children are encouraged to self-select resources they may need, younger children are supported in this choice with the intention that they develop independence as they progress through school.

For additional resources for other areas such as measures, there are resource cupboards situated in Year 3 and 5 class bases. It is vital that resources are returned in good order to the place where they were collected. Any damaged equipment must be reported as soon as possible.

All resources need to be kept in a reasonable condition and will be maintained and replaced where necessary. New or innovative equipment will be purchased to improve and enhance the learning environment and experiences of the children.

Parental Involvement

'Parents are a child's first and enduring teachers. They play a crucial role in helping their children learn. Children achieve more when schools and parents work together. Parents can help more effectively if they know what the school is trying to achieve and how they can help.'

DFES 2005

At Mount Pleasant, we believe that a successful partnership with parents has a huge impact on a child's learning. Children learn more effectively and quickly if their parents are supportive. A child that has supportive and enthusiastic parents is far more likely to have a positive attitude towards school, and be more receptive to learning. Therefore parents are vital partners in a child's education. Parental involvement is vital to achieve success in the teaching and learning of Mathematics. There are a variety of ways we achieve this:

- Monthly newsletters include information on objectives being delivered and the names of useful websites.
- Parental workshops, where parents work alongside their child.
- Home Learning Tasks – these mainly focus on embedding basic skills in the four calculations.
- Home/School contracts are produced at the beginning of the year and parents are asked to support their child in a variety of ways. These are signed and a copy is given to parents.
- Mathematics Parental Workshops - Held each two years and mainly aimed at parents of children in Years 3 and 4, these informal meetings give parents an insight into how Mathematics is taught in a particular year group, how groups are organised and methods of solving and recording work.
- SATS workshop for parents of pupils in Year 6. Held during the spring term.
- Class Displays – These inform parents on methods used in the teaching of Mathematics and also how work is presented.
- End of year reports

Mathematics and Pupils with Additional Needs (Refer to Special Needs Policy)

All staff are aware that children develop at different rates. It is acknowledged that some pupils will be working above or below the average expected level for their age group. There is flexibility for content to be introduced earlier or later than set out in the programme of study. In addition key stage content can be introduced at an earlier key stage. However if content is introduced early it will not be assessed until the child reaches that year group.

The school aims to identify children who have additional needs as early as possible in their education through the schools assessment programme and the use of Foundation profiles.

Pupils who are working below the expected level for their age group will be supported and assessed by the SENCO. Provision within each year group of support staff allows teachers to plan to support these children with the aim that any gaps between themselves and their peers will not widen. Parents are informed and encouraged to support their child. Provision and/or assessment by outside agencies will be considered if appropriate to the child's needs.