

# Gwladys Street Nursery and Primary School



## Mathematics Policy

## Golden Opportunities for Achievement and Learning

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### Mathematics Policy Principles and Rationale

#### Vision Statement

To provide the stepping stones for a successful and fulfilling future with the Gwladys Street Family, celebrating generations of success.

#### Aims

We want our school to be one:

1. Where everyone has access to an engaging, creative and challenging curriculum that promotes a love of learning.
2. Where everyone feels safe, happy and secure in our learning community.
3. Where everyone works in partnership with the wider school community.
4. Where Golden Opportunities are provided in an Inclusive Setting.
5. Where everyone respects each other and works as a team to achieve our GOALS.
6. Where children develop lively, enquiring minds, self-confidence and independence.
7. Which promotes a healthy lifestyle and positive, spiritual and moral values.

#### Intent

The intent of our Mathematics curriculum is to design a curriculum, which is accessible to all and will maximise the development of every child's ability and academic achievement. In Mathematics we would like to ensure all children leave school with their basic skills, an enthusiasm towards Mathematics, secure knowledge and resilience towards problem solving by applying skills learnt to enable them to thrive in the modern world.

We aim to do this by:

1. Fostering and nurturing a curiosity towards the subject that will stay with them for the rest of their lives.
2. Providing 'Real life' opportunities so pupils make links and understand its purpose.
3. Providing opportunities to apply their mathematical knowledge to other areas of the curriculum confidently.

We believe that Mathematics provides children with the essential life skills of:

- Understanding number and calculation,
- Problem solving,

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- Enquiry,
- Reasoning Skills,

We aim to provide children with a fun but focussed Maths curriculum, providing the children with the skills to become equipped for adult life. We adopt a fully inclusive, mind-friendly approach to teaching and learning in Mathematics where children are challenged sufficiently in a supportive environment.

### Implementation - Planning our Mathematics Curriculum

At Gwladys Street, Maths planning takes on the form of one Active Maths session and four Power Maths sessions per week. Active Maths sessions are initially planned to support the whole school focus for that academic year before covering other aspects of the Maths curriculum.

To ensure our Mathematics curriculum is accessible for all pupils, school uses the DFE approved Power Maths approach. This is fully aligned with the White Rose Maths scheme and covers the National Curriculum requirements. The school's ongoing engagement with the DFE funded Maths Hubs programme continues to ensure that staff at all levels understand the pedagogy of the approach.

To develop resilient learners' pupils work in mixed ability pairs allowing them to share and discuss their ideas in all Mathematic lessons.

At the beginning of each session staff begin with a 'Power up' activity where pupils develop their understanding of basic skills through counting. Lessons then begin with an initial problem-solving activity '**Discover**' which prompts discussion and reasoning, as well as promoting an awareness of maths in relatable real-life contexts that link to other areas of learning. At this point, pupils are encouraged to use resources and also reflect on their learning in 'Maths Journals' with Mathematical drawings or representations. These can then be used throughout the lesson to support pupils understanding. At the end of the '**Discover**' phase, staff '**Share**' the pupils learning and look at other alternative methods.

Key vocabulary for this session is then shared with the class and written on the Working Wall, this vocabulary is discussed and explained and put into context and drawn upon throughout the session.

During the '**Think together**', pupils are encouraged to use resources and equipment (concrete manipulatives) and models and images. In EYFS and Key

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Stage 1, these are placed on the table for the pupils to access throughout the session. In Key Stage 2, these resources should also be made available at all times for pupils needing additional support.

Throughout the lesson, teachers use careful questions to draw out children's discussions and their reasoning. The class teacher then leads children through strategies for solving the problem, including those already discussed.

Independent 'Practice' work in Power Maths books, provides the means for all children to develop their fluency further, before progressing to more complex related problems allowing them to reason and problem solve. During the lesson, the teachers will hold mini-plenaries to establish pupils understanding and provide additional support when needed.

At the end of the session, time is used to 'Reflect' on the learning that has taken place both verbally and written. Pupils are then asked to reflect against the steps to success.

Mathematical domains are taught in blocks, to enable the achievement of 'mastery' over time. Each lesson phase provides the means to achieve greater depth, with more able children being offered rich and sophisticated problems, as well as exploratory, investigative tasks, within the lesson as appropriate.

Our curriculum has been carefully devised to ensure that each year's learning opportunities and assessments are embedded with essential knowledge, skills and understanding which accelerates progress and outcomes over time.

Real life experiences are provided through visitors and National initiatives including Money Week and the Fiver Challenge.

### Basic Skills

Basic Skills are underpinned through daily '15 minute' Basic Skills sessions where pupils practice '5 a day' activities including the use of Times Table Rock stars.

Teacher allow pupils to complete the challenges before addressing misconceptions and developing pupils understanding.

### Active Maths or Maths of the Day

Once a week each class participates in Active Maths to provide additional opportunities to recall knowledge and skills previously taught in a fun and active environment. This lesson is recorded in Maths Floor Books which include images of the pupils participating in the activity, pupil voice through speech bubbles (or written by staff for pupils in EYFS and at the beginning of Year 1), examples of work and a written observation sheet by the teacher.

Active Maths is an innovative and creative online resource providing lesson plans for 'Active Maths' linked to the National Curriculum which brings together

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Mathematical learning and PE. Its main focus is in developing fluency through number and is an engaging and exciting way to deliver Mathematics and PE. Motty the Active Maths Mascot joins the pupils in these lessons.

### Planning

Before planning a unit of work, staff are encouraged to watch the unit video linked to each domain providing additional CPD.

'S' plans are written for each unit which highlights the 'learning journey', with clear WALTs, resources, key vocabulary and links to CPD. This allows staff to ensure the correct pace and provide additional overlearning opportunities when needed.

Staff are asked to download planning from the Power Maths website or use the Planning documentation and annotate. Staff are expected to have read and prepared for each session before teaching.

The planning provides additional information on common misconceptions and how to support children as well as providing additional challenge for more able learners.

In Foundation 1, Staff plan sessions so pupils receive a personalised curriculum designed around the Birth to Five revised Ages and Stages. Supported by Power Maths training.

At the beginning of the academic year the Mathematics Leader provides the staff with a detailed break down of areas of learning which have been identified as areas of development in the pupil's previous years optional SATs papers and school tracking systems. This is used to support the staff when creating a Mathematics curriculum that is tailored towards the needs of the children. At this point and throughout the year, provision is allocated to children needing additional support using Power Maths **Strengthening and Deepening** activities outside the classroom as well as other purchased interventions such as IDL Maths. However, 1<sup>st</sup> class teaching is always the main priority.

### Mind Friendly and Active Learning

Our Learning and Teaching policy states that children learn best when they are engaged and active participants in their learning. Mind-friendly learning gives teachers opportunities to challenge children's thinking in a non-threatening way, whilst embedding learning.

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We recognise that Mathematics lessons should **not** be dominated by teacher talk. Children can be active using whiteboards, show me activities, talking partners, mind maps, flash cards, number fans etc.

### Think Pair Share

Children should be given thinking time before answers are expected, opportunities to share ideas with a partner and then a group before feeding back to the class. This reinforces learning and develops speaking and listening skills. We believe that 'talking maths' strategies are essential if we are going to develop numerate children.

### VAK

Opportunities should be created in Mathematics teaching for children to experience visual, audio and kinaesthetic learning. Allowing children to learn in different ways improves understanding, enjoyment and retention of what is being taught. Audits of mathematical equipment are located in the staff drive.

### Calculation Policy

At Gwladys Street Community Primary and Nursery School the staff agreed to follow the progression of written calculations detailed in our Calculation Policy at a staff meeting in April 2020. The policy is located on the staff drive.

**The essential components of the Calculation Strategy are;**

- **Children's mathematical development should be progressive and structured**
- **In all lessons children should be taught a core strategy.**

It is important to stress that when using the Calculation Policy

- Children will be encouraged to approximate their answers before calculating.
- Children will be encouraged to check their answers after calculations are made.
- Children will be encouraged to consider if a mental calculation is appropriate before using written calculations.

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### Problem Solving

All teaching staff have been trained in using the 'Bar Model' approach to problem solving and it is expected that children are taught how to solve problems through this method alongside the use of Stem sentences.

Children will begin developing their understanding of this approach through practical activities using Cuisenaire rods progressing to representing problems through diagrams.

### IMPACT - Assessment

Throughout each lesson formative assessment takes place and feedback is given to the children through marking and next step tips to ensure they are meeting the specific learning objective. Teacher's then use this assessment to influence their planning and ensure they are providing a mathematics curriculum that will allow each child to progress.

Same day interventions are used to support pupils who did not achieve the lessons objectives.

Teachers assess pupils' achievements at the end of each domain using our tracking grids and this supports their overall judgement when submitting data during our planned data drops.

The teaching of maths is also monitored through 'Deep Dives' which include book scrutinies, learning walks, pupil voice and lesson observations.

Summative Assessments (previous SAT papers) are used in Key Stage 1 and 2 (Year 2 and 6) at planned periods in line with Assessment Drops. These support teachers in identify next steps and support informing Teacher Assessments.

Throughout the year, each teacher keeps an overview assessment sheet which covers all areas of Mathematics. They highlight this to show the coverage and depth of understanding for their class. This is then passed to the next teacher at the end of the academic year so that they can plan appropriate steps for the following year.

### Marking and Feedback

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Throughout lessons, teachers will provide pupils with instant verbal feedback to ensure they makes rapid progress within the lesson. These pupils needing support are identified through mini plenaries and teacher questions.

At the end of the lesson, the teacher will mark the child's work following the schools Marking and Feedback Policy.

### Assessment for Learning

Assessment for Learning should be an integral part of all Mathematics teaching. Every lesson should have a clear and child friendly learning intention (WALT) "we are learning to..." as well as success criteria or steps to success.

These are attached at the top of the pupils work book to support their learning.

### Multiplication Check Year 4 - Times Table Rock Stars

To support and prepare pupils for the Year 4 Multiplication Check, pupils from Year 1 to 6 have access to Times Table Rock Stars. Teachers group pupils and match learning opportunities to support. Certificates are presented every Friday in our Merit Assembly and names are added to our leader board in the Key Stage 2 hall.

Each week, as part of the basic skills, pupils are taught key concepts to support their understanding of multiplication and division. They then use this to support three quick fire activities finishing with a times table test at the end of the week. Teacher track this and pupils move onto the next times table once proficient in the previous one learnt.

### Math-Magician passports (Carlos the Calculator)

In EYFS, we use passports to support the children's learning of basic skills in Mathematics. Age appropriate passports are given to each child at the beginning of each year. However, SEND children can begin on passports which support their needs. The passport targets are broken into *Bronze, Silver and Gold*. Each child has to achieve each target over the period of a year. Their understanding is assessed throughout the year to check it is secure.

This document supports teachers building a profile of the pupils learning.

### Additional Needs Provision

Children may benefit from being provided with Mathematics intervention through tailored support. These children will be added to the Provision map if they are making little progress; they are off track to meet predictions or if they have a specific learning difficulty.

**Power Maths Strengthening Activities**

**Power Maths Deepening Activities**

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Numicon

IDL Maths

Basic Skills Interventions

Picture Maths

Learning by Question

It is dependent on LSA resources and pupil needs as to whether all or some of these interventions are run.

Also refer to the INCLUSION AND SPECIAL EDUCATIONAL NEEDS POLICY for further guidance.

### Home Learning

At Gwladys Street Community Primary and Nursery School we understand the need to support parents with home learning. Support can be found on the school website <http://www.gwladysstreet.org/mathematics/>. In addition to this, the school is also committed to providing regular opportunities for family learning sessions about mathematics in school.

Children are given one piece of home learning each week. This is set by the class teacher and is in the form of an activity or project that will consolidate the learning that has been happening in school.

Differentiated Home learning can also be accessed through **Times Table Rock Stars for Year 1 to 6**, where children take part in fun activities which are designed to support and move their learning forward. Children are rewarded through certificates of achievement in weekly celebration assemblies.

### Resources

All classrooms have a useful area where children can access a wide range of resources to support them in their learning. However, as part of the Power Maths lesson, it is expected that all equipment and apparatus needed for the lesson is prepared and set out on tables prior to the lesson commencing.

Each classroom also has an Estimation Station to support the children in the vital skill of estimation and this is updated every 6 weeks. The Maths Lead, notifies all teaching staff of the focus so that there is consistency across the school.

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Some practical resources are catalogued and located in the Maths areas in the staff room. Only adults are permitted to collect and return resources and are expected to return resources back to their boxes, shelves etc.

### Learning Walls

#### **Purpose of working walls**

The learning environment that is provided for children can have a huge impact upon their learning and independence. Changing the emphasis of the content of the display can support the children in their day to day and longer term learning.

The term 'working wall' is used to describe displays which support children's learning during specific domains of work.

The content of a working wall should change regularly to support learning and teaching as it develops in the classroom. The ultimate aim is for children to access prior learning, make links to what they already know and apply this to future learning.

A working wall enables children to refer models and images, to concepts and resources, supporting them to become more secure independent learners. It is the public display of the learning process. It is important for long term learning objectives and short term intentions to be displayed on the working wall.

When success criteria are appropriate they are developed with the children and clearly displayed on the wall, demonstrating to pupils how they will be able to achieve the agreed learning intention.

Key vocabulary for that domain should be clearly displayed on the wall to support children's learning and amended when new vocabulary is introduced throughout the domain.

Teachers weekly planning should be added to the learning wall.

### Mathematic Progression walls

In each Key Stage hall we have a progression wall. This wall is changed throughout the year and reflects school priorities identified during regular data collection.

Children produce work within Mathematics or cross curricular lesson with a set focus. Staff then choose a selection of work which reflects Age Related Expectations. This work is displayed with 2 speech bubbles, one from the

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teacher identifying the specific areas covered and what the child did well. The other from the child explaining what they achieved and enjoyed.

### CPD

Training is provided throughout the year depending of the developing needs or by identifying key areas through learning walks, book monitoring, pupil voice or lesson observations.

Power Maths also provides training when required.

The Maths Lead has also asked staff to complete personal CPD by completing the National Numeracy Challenge which then provides personalised learning opportunities to develop their own Mathematical understanding.

This is also available for parents and carers to participate in.

Please also read this policy in conjunction with;

- Marking and Feedback Policy
- Calculation Policy