

# **MATHEMATICS POLICY**



## **1. Introduction**

Mathematics is an essential life skill, concerned with numbers and their properties, number relations and operations, and with shapes in space and their structure and measurements. It is a tool for everyday life, and an important means of communicating ideas and information. It is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real life problems.

## **2. Aims**

Through the teaching of mathematics we aim to:

- Develop a positive attitude towards maths, promoting enjoyment and enthusiasm for learning.
- Enable children to build a strong knowledge of key mathematical concepts, through direct whole class teaching, group-work, practice, and exploration.
- Promote & develop competence and confidence in mathematical knowledge, concepts & skills.
- Develop logical thinking and reasoning skills, as well as opportunities for discussion.
- Create practical maths activities which harness the natural curiosity of children.
- Develop opportunities, through maths, for discussion.
- Develop a thorough knowledge and understanding of numbers and the number system
- Develop the ability to solve problems via decision-making & reasoning in a range of contexts.
- Develop a practical understanding of the ways in which information is gathered and presented.
- Explore features of shape and space, and develop measuring skills in a range of contexts
- Develop a range of methods for calculating: mental, pencil & paper techniques, & calculator.
- Develop an ability to use and apply mathematics across the curriculum and understand the importance of mathematical skills in everyday life.

## **3. Whole School Organisation and Management**

### **(i) Planning**

The Mathematics Programme of Study (National Curriculum September 2014) is the basis for implementing the statutory requirements for maths. The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. Decisions about when to

progress should always be based on the security of children's understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly will be challenged through being offered rich and more sophisticated problems and opportunities for reasoning before any acceleration through new content. Those who are not sufficiently confident with earlier material will consolidate their understanding, through additional practice, before moving on.

The class teacher completes the weekly planning for the teaching of mathematics. These weekly plans list the specific learning objectives for each lesson and also the objectives for the daily maths meeting and give details of how the lessons are to be taught.

The Grangetown Calculation policy which outlines the development of written methods in maths is used across the school to ensure continuity, consistency and progression.

### **(ii) Time Allocation**

Mathematics is taught through a daily maths lesson. To help develop basic skills and rapid recall, regular 'maths meetings' also take place across KS2 and additional maths games (including the use of ICT), activities and songs take place in KS1. Maths interventions take place in order to address specific areas – usually in the form of immediate intervention if objectives have been misunderstood in lessons.

### **(iii) Assessment**

Assessment takes place in line with our Assessment Policy. It is an integral part of learning and teaching and is a continuous process. Short term assessments, closely matched to the teaching objectives, are made - which we use to help us to adjust daily lesson plans. A traffic light system is used when marking the children's books. The children also self assess using a traffic light system to enable the teacher to gauge the correct level of the children's understanding. CPA is also added to work and letters circled depending upon whether they have used concrete resources, pictorial resources or if children have worked out using abstract methods. Maths joggers are also used as a revision of objectives the children have covered or to practise objectives children found more difficult.

Medium-term assessments are made to measure progress against maths objectives, and to help teachers plan the next unit of work. Teachers use Sunderland Solutions as a way of recording children's understanding and progress in objectives covered across each term. Assessments are a blend teacher assessment with more formal written tests used each term, to support and inform teachers of children's understanding, attainment and progress. Children in years 2 and 6 are formally tested using the national Standard Assessment Test.

### **(iv) Cross Curricular Links**

Mathematics is an integral part of our daily lives and therefore manifests itself in many areas of the curriculum. Through our theme-based curriculum, links are made where possible to other core and foundation areas.

### **(v) Reporting to and working with parents**

- Each term, parents are invited to the school for a consultation to discuss their child's progress and attainment.
- An annual written report is sent to parents, with information related to progress and attainment.
- Parents also receive an informative, half-termly Parent Pamphlet, providing information related to all areas of the curriculum and some tips on how to assist their child with their learning at home (including maths).

- Every class holds a termly Parents' & Carers' Workshop, during which parents can work alongside their children on a learning activity (covering various curriculum areas, sometimes involving Maths).

#### **4. Lesson Management and Organisation of Teaching**

##### **(i) Planning**

- The Maths Framework (Sep 2014) is the basis for implementing the statutory requirements of the programme of study for mathematics. Learning is broken down into small, connected steps, building from what pupils already know. Skilled questioning challenges thinking and develops learning for all pupils.
- Contexts and representations are carefully chosen to develop reasoning skills and to help pupils link concrete ideas to pictorial representations and abstract mathematical concepts.
- The use of high quality materials and tasks to support learning and provide access to the mathematics, is integrated into lessons. These may include textbooks, visual images and concrete resources
- Our school Quest curriculum document outlines the Long term planning for maths and shows Year group objectives for each maths domain. Objectives are organised into terms and weeks and follow the White Rose Small Steps scheme of work. Problem solving and reasoning objectives are also included for each year group.
- Our medium term planning gives details of the main teaching objectives for each half-term. They ensure an appropriate balance of work across each half-term. Any cross curricular links involving maths are added to medium term topic webs.
- Short Term plans or weekly planning includes objectives/skills being taught, teaching points, details of tasks or activity – including differentiation or guided work, how work will be assessed and reviewed, daily maths meetings and any immediate interventions needed.

##### **(ii) Features of teaching**

- Key new learning points are identified explicitly.
- There is regular interchange between concrete/contextual ideas, pictorial representations and their abstract/symbolic representation. As the children become more confident, they may choose to move straight to pictorial or abstract.
- Mathematical generalisations are emphasised as they emerge from underlying mathematics, which is thoroughly explored within contexts that make sense to pupils.
- Making comparisons is an important feature of developing deep knowledge. The questions "What's the same, what's different?" are often used to draw attention to essential features of concepts.
- Repetition of key ideas (for example, in the form of talk partners etc) is used frequently. This helps to verbalise and embed mathematical ideas and provides pupils with a shared language to think about and communicate mathematics.
- Teacher-led discussion is interspersed with short tasks involving pupil to pupil discussion and completion of short activities.
- Formative assessment is carried out throughout the lesson; the teacher regularly checks pupils' knowledge and understanding and adjusts the lesson accordingly.
- Gaps in pupils' knowledge and understanding are identified early by in-class questioning. They are addressed rapidly through individual or small group intervention, either on the same day or the next day, which may be separate from the main mathematics lesson, to ensure all pupils are ready for the next lesson.

### **(iii) Special Educational Needs**

Provision is made for any pupils with special educational needs. The curriculum is differentiated through the use of differing pupil task, adapted equipment and resources and levels of adult support.

### **(iv) Differentiation**

In all classes there are children of differing mathematical ability. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. Differentiation is planned for, and throughout lessons a range of strategies and activities are used to ensure appropriate learning, matched to the needs of each child. Children are asked to undertake independent work but other strategies are also used. In some lessons group work is undertaken, and in other lessons, children are organised to work in pairs on open-ended problems or games. Teaching assistants support some children and ensure that work is matched to the needs of individuals. Children are guided and supported in choosing an appropriate level of challenge – they are not confined to rigid groups or tasks as to not create a ceiling for their attainment and progress. Children record their work in appropriate exercise books: KS1 and LKS2 – 1cm squared books, Year 5 and 6 – 7mm squared books. Additional coloured books are used for those children with dyslexia who benefit from using blue or cream coloured books; these squares are 1cm.

### **(v) Equal Opportunities**

Provision for mathematics is in line with all of our policies. All children have equal access to the maths curriculum and to developmentally appropriate materials. Teaching will be differentiated appropriately. Resources etc. are sensitive to the needs and backgrounds of the children and will not reflect gender or cultural stereotypes.

## **5. The Role of the Mathematics Leader**

### **(i) Overall Duties**

The Maths Coordinator is responsible for the monitoring and implementation of the Mathematics Curriculum, takes an overview of all aspects of teaching & learning in mathematics (including assessment), advises on CPD, and is responsible for the overall management of resources.

- Take a lead in policy development and the production of a Scheme of Work designed to ensure progression and continuity throughout the school.
- Monitor progress in mathematics and advise the Headteacher on any action needed [see (ii) below].
- Support colleagues in their development of detailed work plans and the implementation of the Scheme of Work and in assessment and record keeping activities.
- Take responsibility for the purchase and organisation of central resources [see (iii) below]
- Keep up to date with national and local developments in mathematics and disseminate this information to colleagues.

### **(ii) Monitoring**

Regular management time is allocated for the monitoring of the taught curriculum and of pupils' standards of achievement. This is achieved through scrutiny of books, planning, maths walks and pupil interviews. Less formal monitoring is achieved through discussion in staff meetings and key stage meetings. We hold termly staff 'challenge' meetings when staff meet with members of the leadership team to discuss pupil progress and planned interventions for literacy and maths. Key Stage Leaders then write, produce and present a termly report to the 'Governors Challenge Group' which include impact from maths interventions and any issues in maths attainment and progress.

For all Core Subjects, the leader is allocated non-contact time, some of which will be employed in observing teaching and learning. The mathematics subject leader writes the maths action plan and then evaluates it annually. A named member of the school's governing body – a 'link governor' - meets regularly with the subject leader to discuss mathematics across the school and to review progress of the maths action plan.

### **(iii) Organisation of Resources**

- Each class teacher has resources stored in the classroom, matching the curriculum content for their year group.
- Each classroom has a maths resource area where the children can independently find and use resources that will help and support them in maths. These resource areas have interactive displays to promote the practical use of maths.
- There is a central store of larger maths equipment.

## **6. Additional Information appropriate to this Curriculum Area**

### **(i) Learning at Home**

We actively encourage links between home and school. Children are expected to spend time each week learning their times tables and have ICT login details to support this including Timestables Rockstars, Prodigy and Sumdog. Parents sign home/school diaries to show the number of times children have practised.

### **(ii) Interventions**

In maths, immediate interventions are utilised to safeguard against gaps widening and to ensure that children do not move on to the next session with misconceptions from the previous lesson. Pre interventions are also used if and when appropriate.

### **(iii) Rapid Recall**

To aid children in the rapid recall in maths, children in KS1 complete short maths activities or play games or sing songs. In KS2, regular maths meetings take place to give the children more practice and a greater understanding of basic maths skills and rapid recall in maths.

### **(iv) GPS Multiplication Award**

We celebrate times tables by holding a half termly multiplications award assembly where children receive multiplication badges for any times tables they have achieved.

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This Policy was developed in consultation with staff.

Policy updated: July 2021

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