



Dringhouses Primary School

Mathematics Policy

MATHEMATICS POLICY

Introduction

This policy outlines the aims, organisation and management for the teaching and learning of mathematics at Dringhouses Primary School. It is currently based on the National Curriculum with resources from the White Rose Maths Hub being used to support the planning and teaching of mathematics.

Aims

At Dringhouses Primary School we wish to teach children life skills by providing challenging, stimulating, worthwhile and enjoyable experiences in mathematics in order to develop enquiring and creative minds. We encourage hard work, commitment and self-discipline to maximise potential.

Our aims in teaching mathematics recognise the right of our pupils to:

- Gain the skills in mathematics they need to become numerate.
- Develop their ability to apply mathematical skills with confidence and understanding when reasoning with mathematical concepts.
- Express themselves and their ideas using the language of mathematics with assurance.
- Develop positive attitudes to mathematics, recognising that mathematics can be both useful and enjoyable.
- Develop a fascination and excitement of mathematics.
- Be able to use and apply the skills in other curricular areas.

Children have the responsibility with support to:

- Select materials and concrete resources that are appropriate for a given task.
- Plan and reason.
- Check that results are sensible.
- Try alternative strategies.
- Complete a task.
- Interpret information.
- Discuss work in progress and extend this by asking questions.
- Explain and record work systematically.
- Present results in a way easily understood by others, pictorially or symbolically.
- Develop ideas of argument or proof, by asking the question “what if..?” making and testing predictions and statements, testing hypothesis, proving and disproving and reasoning.
- Simplify difficult tasks.

Teaching Mathematics

Organisation

- The EYFS curriculum is taught for children at the early years' foundation stage. At this stage pupils experience mathematics on a daily basis through play-based learning in the Areas of Provision (AOP) and focused teaching. This early introduction to mathematics will generally be undertaken orally and often in the context of a class theme, e.g. a particular story. Opportunities for mathematics should be developed through daily routines and all areas of learning. In addition, children have a daily 15 minute whole class session, where basic fundamental maths skills are taught, as well as participation in group activities with the teacher.
- Mathematics lessons of 50 minutes are taught in KS1 every day. Pupils are taught in their usual class groups by their class teacher.
- Mathematics lessons of 60 minutes are taught in KS2 every day. Pupils are taught in their usual class groups by their class teacher.
- The skills acquired in the maths lesson are applied across the curriculum and this can be seen around school through whole-school cross-curricular maths projects.
- All children in KS1 and KS2 complete an arithmetic-based 'smart start' task during registration every morning.

A typical lesson in Year 1 – 6 may be organised like this:

- Oral work and mental calculation (about 5 to 10 minutes)
 - This involves whole-class work to rehearse, recall, refresh, refine and reason mental and oral skills.
- The main teaching (about 30 to 40 minutes)
 - This includes both teaching input and pupil activities and a balance between whole class, guided group, paired and individual work.
 - Teaching, across the school, tries to develop children's mathematical ability through the stages of concrete, to pictorial and finally to abstract (CPA) to ensure a deep rooted understanding.
 - Children mostly work in mixed ability groups or pairings according to the intended learning outcome.
- A plenary (about 10 minutes)
 - This involves work with the whole class to refer back to the learning objective and success criteria, address misconceptions, identify progress, summarise key facts and ideas and clarify what needs to be remembered, to make links in other work and to discuss next steps in learning.

The organisation of a mathematics lesson is open to the class teacher to decide, as different teaching and learning styles work differently across the school. Teachers remain flexible and build lessons to suit the needs of their individual class and pupils.

Teaching strategies

In order to provide the children with active and stimulating learning experiences, a variety of teaching and learning opportunities are adopted:-

- Children may work individually on a task, in pairs or in a small group, depending on the nature of the activity.
- Wherever possible, practical 'real' activities are used to introduce concepts and reinforce learning objectives.

- Opportunities to transfer skills learnt, to real situations, are used whenever possible.
- Activities are planned to encourage the full and active participation of all pupils.
- Teachers provide scaffolding to support every children to meet the learning objective.
- Teachers place a strong emphasis on correct use of mathematical language; this is supported by key vocabulary being displayed.
- Teachers value pupils' oral contributions and create an ethos in which all children feel they can contribute.

Curriculum Planning

Medium Term Planning

Teachers use the White Rose Maths Hub planning resources to support the planning of teaching sequences that build learning over time. The emphasis is to develop a sequence of teaching and learning that encompasses the cycle of assess, plan, teach, practise, apply, and review through each programme of study. A strong emphasis on Using and Applying mathematics is embedded within the curriculum.

The White Rose Maths Hub sets out the national curriculum into key topics of up to 3 weeks for the whole year. Teachers use the previous learning, learning overviews, assessment for learning, key questions and other resources to create weekly plans to meet the needs of individual pupils, cohorts and classes.

Short term planning

- Mathematics short term plans are prepared each week using the planning proforma. These plans must include learning objectives, outline activities for the mental and oral starter, whole class teaching focus, guided group work, independent tasks, differentiation and key questions. All lessons include learning objective (WALT) and success criteria (WILF).
- Teachers evaluate units of work, making notes on pupils who have exceeded or not achieved expectations.

The medium and short term planning is added to the school's shared drive and is monitored by the headteacher, senior leadership team and maths subject leaders to support book scrutinies. The outcomes of the monitoring of teaching and learning is reported to governors.

Teaching methods and approaches

In order to provide the children with active and stimulating learning experiences, a variety of teaching and learning opportunities are adopted:

- The school follows the White Rose Maths Hub Calculation Policy for KS1 and KS2 to ensure consistency of teaching methods across the school and to aid parents/carers in supporting their child at home.
- ICT is used where appropriate by teachers and pupils to support teaching and learning in mathematics.

Assessment, Recording and Reporting

Assessment takes place at three connected levels: short-term, medium-term and long-term. These assessments are used to inform teaching in a continuous cycle of planning, teaching and assessment.

Day-to-day assessments

As part of the ongoing teaching and learning process, teachers will assess children's understanding, achievement and progress in mathematics. Assessment may be based upon observation, questioning, informal testing and the marking and evaluation of work. This will inform day to day teaching and learning and provide feedback to children.

Learners are also taught to assess and evaluate their own achievements by recognising successes, peer and self-marking, learning from their own mistakes and identifying areas for improvement. KS2 pupils are asked to provide evidence to meet their target. Daily 'keep up' sessions are used to address any misconceptions and review any learning, ensuring all children are confident and ready to move on to the next step of learning before the following lesson.

Periodic assessments

These take place half termly. Teachers assess key ideas, end of year expectations, targets and areas of concern that have been covered during the programmes of study. The outcomes of short and medium term assessments are recorded on half-term tracking spreadsheets and saved onto a tracking system. This evidence base is supported by class tests, e.g. Rising Stars Arithmetic tests and White Rose Maths Hub tests.

Transitional assessments

These are carried out towards the end of the school year to assess and review pupils' progress and attainment. This enables attainment to be tracked year on year and informs groupings and intervention programmes. These are made through compulsory National Curriculum mathematics tests for pupils in Year 2 to support teacher assessment (externally set and internally marked) and Year 6 (externally set and externally marked)) and supplemented other formal tests as noted above. Teachers also draw upon their class records of attainment (trackers, notes on planning, APP) and supplementary notes and knowledge about their class to produce a summative record. Accurate information is then reported to parents and the child's next teacher.

Intervention Programmes

Children who appear to be making less progress than expected may be offered an intervention programme if we feel that that this may enhance their achievement. Teachers use methods such as Precision Teaching and Pre-Teaching to support these children. Provision is also made for children attaining high levels but who are identified as underachieving (ref Able policy).

Equal Opportunities and Inclusion

The school's Equality policy applies to the teaching of mathematics as to all other subjects and aspects. All pupils have equal opportunity to reach their full potential across the mathematics curriculum, regardless of their race, gender, cultural background, ability or physical disability.

Environment

It is important that the classroom environment supports both the learning and teaching of mathematics.

The school aims to provide a mathematically stimulating environment:

- through working walls which can be added to before, during and after maths lessons for pupils to reference regularly.
- through interactive and visual displays that promote mathematical thinking and discussion.
- through displays of pupils' work that celebrate achievement.
- through displays of pupils' work (R-Y6) that demonstrate WAGOLL (What A Good One Looks Like) in communal areas around school.
- by providing a good range of resources for teacher and pupil use.
- The school has resources boxes, carefully divided to meet each objective throughout the school.

In every classroom, resources such as number lines, hundred squares, place value charts and multiplication squares are displayed as appropriate and used for whole class or individual work.

Homework

We recognise the importance of making links between home and school and encourage parental involvement with the learning of mathematics. Homework provides opportunities for children:

- to practise and consolidate their skills and knowledge,
- to develop and extend their techniques and strategies,
- to share their mathematical work with their family, and
- to prepare for their future learning.

Differentiated mathematics homework is set throughout the school in accordance with the Home-School Agreement and Homework policy. This can include the recall of number facts, a piece of topic work (eg research, collecting data) or consolidating work learned in the maths lessons (eg multiplication tables), some aspect of which will form the basis of the child's mathematics targets.

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Next review due Autumn 2021