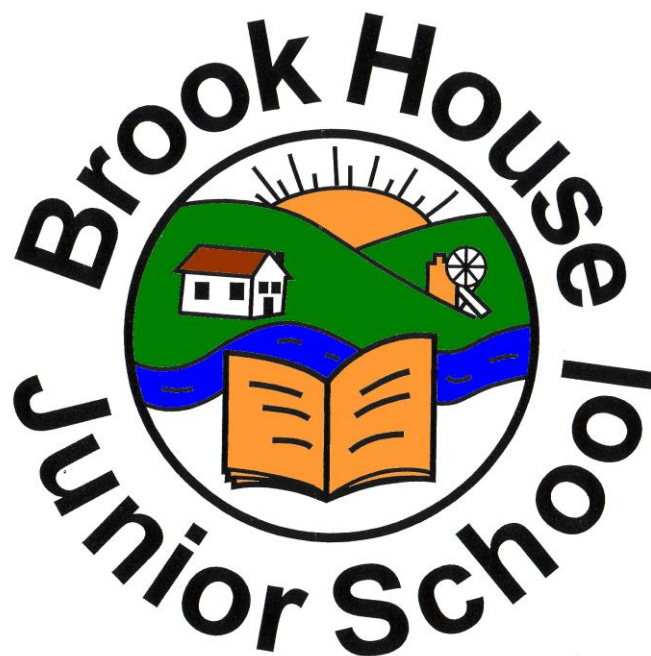


Brook House Junior School



Mathematics Policy 2015

Rationale

All school policies form a corporate, public and accountable statement of intent. As a large junior school it is very important to create an agreed whole school approach of which staff, children, parents, governors and other agencies have a clear understanding. This policy is the formal statement of intent for mathematics. It reflects the essential part that mathematics plays in the education of our pupils. It is important that a positive attitude towards mathematics is encouraged amongst all our pupils in order to foster self-confidence and a sense of achievement. The policy also facilitates how we, as a school, meet the legal requirements of recent Education Acts and new National Curriculum requirements.

Aims and objectives

Mathematics teaches us how to make sense of the world around us through developing a child's ability to calculate, to reason and to solve problems. It enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many people to the development and application of mathematics.

The aims of mathematics are:

- To promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion
- To develop logical thinking and reasoning skills through a natural curiosity and investigative approach
- To promote confidence and competence so that children are 'proud to shine' about their achievements
- To develop conceptual understanding and procedural fluency in parallel, through using concrete, pictorial and symbolic representations and making connection between them.
- To develop a thorough knowledge and understanding of numbers and the number system
- To develop the ability to solve 'real life' problems through decision-making and reasoning in a range of contexts
- To develop a practical understanding of the ways in which information and statistics is gathered and presented
- To explore features of shape and space, and develop measuring skills in a range of contexts
- To understand the importance of mathematical skills in everyday life.

Teaching and learning style

Each teacher provides a balance of teaching styles dependent on the needs of the pupils and the unit of work being taught. Pupils are provided with opportunities to develop and extend their mathematical skills through completing challenges and working collaboratively (using Kagan Co-operative Learning). Lessons generally follow the traditional format with a mental/oral starter, a main teaching activity and a plenary session although with the implementation of the new Mathematics Curriculum 2014 this may not always be the case. At Brook House the children work in ability sets in each year group. Each cohort is divided into three ability sets for 5 days a week (except for lessons when they remain as whole classes to work on collaborative investigational activities). Each lower maths set has at least one Teaching Assistant to support children who require additional help.

The teaching of mathematics at Brook House Junior School provides opportunities for:

- group/collaborative work
- paired work
- individual work

Pupils engage in:

- the development of mental strategies
- written methods
- practical work
- investigational work
- 'real life' word problem solving
- mathematical discussion
- consolidation of basic skills and number facts
- working in the ICT suite using RM maths and Education City

At Brook House Junior School we recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. We use the Westfield Family of Schools Calculation Policy alongside the National Curriculum 2014 when planning to help determine the appropriate terminology to use in our teaching and children are expected to use it in their verbal and written explanations.

Mathematics curriculum planning

Mathematics is a core subject in the National Curriculum and we use the 2014 Collins Busy Ant scheme as the basis for implementing the statutory requirements of the curriculum. We carry out the curriculum planning in mathematics in three phases (long-term, medium-term and short-term). The Collins scheme gives a detailed outline of what we teach in the long term, while our yearly teaching programme identifies the key objectives in mathematics that we teach in each year. Our medium-term mathematics plans, which are adopted from the Collins scheme provide details of the main teaching objectives for each term and define what we teach. They ensure an appropriate balance and distribution of work across each term. These plans are kept by both the class teachers and the subject leader. All pupils are entitled to a curriculum that is relevant and has clear learning objectives matched to their needs. Short Term Planning documents indicate activities that are differentiated as appropriate.

At Brook House each year group plans their Mathematics together on one planning sheet every week split into Set 3 (Lower), Set 2 (Middle) and Set 1 (Higher). These weekly plans list the specific learning objectives for each lesson, give details of how the lessons are to be taught, additional adult involvement and show differentiation across the year group. Each year group ensures that it teaches 'roughly' the same Mathematics area each week i.e. number, measurement, geometry or statistics. This way we ensure consistency and progression across each year group. It also eases the transition if children move into a different set during the school year.

Solving 'real life' problems

At Brook House we ensure that children have regular opportunities to answer 'word problems' and to work collaboratively on open-ended investigations. At school, children generally do word problems in sets so that teachers can focus

the questions specifically on the needs of their set. Word problems are (sometimes but not always) done at the end of the week for children to use and apply the knowledge/skills developed earlier in the week. Children answer the problems in their maths books and problem solving stampers are used to acknowledge problem solving opportunities. Investigations naturally lend themselves to children working collaboratively (in mixed ability groups in sets or whole class). Kagan learning structures work effectively with coaching and mentoring in teams and are often referred to in planning and lessons. Evidence for whole class investigations can be photographic and we keep a school real life problem solving portfolio to collect a sample of investigations across school. Investigations can of course also be done in sets and evidenced in books. Updated Collins textbooks in combination with Online Collins planning and resources are used by staff to plan investigations and problem solving activities. We use Rising Stars Problem Solving and Reasoning materials to provide a good range of investigation starting points and as inspiration for our own planning. Essentially, we aim to provide a balance of both word problems and investigations every half term with a real drive on word problems. The expectation is that children do whole class investigations twice a half term and word problems on the other weeks. We have created our own version of the RUCSAC model (for problem solving) that we use across school to ensure consistent teaching of problem solving across all classes.

Read question

Understand the problem (underline if necessary)

Choose operation

Solve (sketch bar to make the question visual if necessary)

Answer question

Check question

At Brook House, we have a 'real life' problem solving/Investigation day each year to celebrate using and applying Maths. We believe that Real life problem solving days are a great way of raising the profile of problem solving (in addition to day-to-day or weekly problem solving in school).

Contribution of mathematics to teaching in other curriculum areas

English

Mathematics contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. For example, we encourage children to read and interpret problems in order to identify the mathematics involved. The children explain and present their work to others during plenary sessions. Younger children enjoy stories and rhyme that rely on counting and sequencing. Older children encounter mathematical vocabulary, graphs and charts when using non-fiction texts.

Science

During science lessons, children are able to use and apply their data handling skills when creating tables and graphs of scientific measurements. Whole class discussion of data also highlights the importance of clear recording of information. Children are also able to use a wide range of measuring devices in a real-life context. Children are required to read the scales on Newton meters, measuring cylinders, weighing scales and a variety of other instruments.

Computing (ICT)

Children use and apply mathematics in a variety of ways when solving problems using ICT. Younger children use ICT to communicate results with appropriate mathematical symbols. Older children use it to produce graphs and tables when explaining their results or when creating repeating patterns, such as tessellations. When working on control, children use standard and non-standard measures for distance and angle. They use simulations to identify patterns and relationships. Older children in Year and Year 6 use the structured RM Maths program and all children use a web based program, Education City, to further their learning.

Personal, social and health education (PSHE) and citizenship

Mathematics contributes to the teaching of personal, social and health education and citizenship. The work that children do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that children do within the classroom encourage them to work together and respect each other's views. We present all children with real-life situations in their work on the spending of money.

Spiritual, moral, social and cultural development

The teaching of mathematics supports the social development of our children through the way we expect them to work with each other in lessons. We group children so that they work together, and we give them the chance to discuss their ideas and results.

The teaching mathematics to children with special needs

All pupils including those with Special Educational Needs are provided with relevant and appropriately challenging work at school in order for them to make progress and achieve their full potential.

Marking

At Brook House we have an agreed marking policy which guides colleagues in effective marking creating a system of simple codes that the school uses to celebrate what children are doing well alongside suggesting ways forward. This system alongside informative teacher comments ensures continuity in marking standards across our school. The principles behind Purple Polishing are ones of encouraging our children to be reflective learners who strive to take ownership in improving their work. In Maths 'Purple Polishing' is an opportunity for children to consolidate a new method, do corrections or challenges. Our school uses '2 stars and a wish' to mark work. This focuses on finding two things the children do well and one point for improvement. To make this manageable our school has created a set of marking symbols that summarise comments in Maths. These are stuck into the back of each child's maths books and children are encouraged on a regular basis to refer to them so children are fluent in their meaning. The school uses a stamper for the 2 stars and a wish to go into books.

Assessment and recording

Assessment is regarded as an integral part of teaching and learning and is a continuous process. It is the responsibility of the class teacher to assess all pupils in their class/set on a half termly basis. In our school we continually assess our pupils and record their progress. We see assessment as an integral part of the teaching process and strive to make our assessment purposeful, allowing us to match the correct level of work to the needs of the pupils, thus benefiting the

pupils and ensuring progress. Pupils are also encouraged to use self-assessment using green pens. Information for assessment is gathered in various ways: by talking to the children, observing their work, marking their work, etc. Teachers use these assessments to plan further work. Our long-term assessments are based on the Sheffield STAT document and individual targets are also set. Our medium term assessments are based on individual class teachers own assessment tests in conjunction with published tests (Rising Stars 2014) based on the units of work covered. Short-term assessments are based on observation of children's work and weekly mental and oral tests. This information is recorded on class/set and individual record sheets. Information from daily assessments is recorded on the short term planning sheet and planning altered accordingly.

Interventions

There are a range of resources to support the teaching of mathematics across the school. Any children, especially children who qualify for the Pupil Premium, who are shown to not be making expected progress are targeted for additional support in class. Many of these children also receive additional support in the form of small intervention groups. The intervention programmes that we use in school are 1stClass@Number2 and success@Arithmetic. We also use the RM Maths computer program to develop speed and recall of mathematical facts.

Resources

There are a range of resources to support the teaching of mathematics across the school. Most classrooms have a range of appropriate small apparatus including calculators. Mathematical dictionaries are available in school. The library contains a range of books to support children's individual research. A range of software is available to support work with the computers. We have a Maths cupboard (situated in the Dining Hall) which houses all the larger apparatus and it is the responsibility of all staff to ensure that it remains in good working order.

Monitoring and evaluation

Monitoring of the standards of children's work and of the quality of teaching in mathematics is the responsibility of the mathematics subject leader and SLT. The work of the mathematics subject leader also involves supporting colleagues in the teaching of mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The mathematics subject leader gives the Head teacher an annual summary in which s/he evaluates strengths and weaknesses in the subject and indicates areas for further improvement. The head teacher allocates regular management time to the mathematics subject leader so that s/he can review samples of children's work and undertake lesson observations of mathematics teaching across the school. A named member of the school's governing body is briefed to oversee the teaching of numeracy. This governor meets with the subject leader every term to review progress.

Responsibilities of the Mathematics leader

The mathematics leader is responsible for co-ordinating mathematics through the school. This includes:

- supporting colleagues in planning, teaching and assessing maths so that they can give every pupil the opportunity to experience success in learning and to achieve as high standard as possible.

- monitoring and evaluating the planning, teaching and assessment of maths so that individual pupils can take part in lessons fully and effectively.
- acting as a change agent, implementing, motivating and reviewing practice and provision.
- attending any cluster meetings and subject courses providing feedback to the staff and Head Teacher.
- ensuring continuity, balance and progression from year group to year group and across sets and to gain an overview of the quality of provision for Maths.
- advising on in-service training to staff where appropriate. This will be in line with the needs identified in the Development Plan and within the confines of the school budget
- advising and supporting colleagues in the implementation and assessment of mathematics throughout the school
- assisting with requisition and maintenance of resources required for the teaching of mathematics. Again this will be within the confines of the school budget
- managing the Maths budget including the ordering of resources in consultation with the Head Teacher.

Responsibilities of other staff

Staff are responsible to:

- build on pupils' knowledge, experiences, interests and strengths to improve areas of weakness and demonstrate progression over time.
- create effective learning environments in which pupils feel valued, secure and are able to contribute appropriately.
- provide equality of opportunity through teaching approaches that enable pupils to learn to appreciate and view positively differences in others.
- develop and update skills, knowledge and understanding of mathematics.
- keep appropriate on-going records.
- plan effectively for mathematics (with year group partners), liaising with the coordinator when necessary.
- inform parents of pupils' progress, achievements and attainment.

Equal opportunities

All pupils are entitled to a broad and balanced curriculum and have equal access. (See Equal Opportunities Policy) All children have equal access to the curriculum regardless of their gender. This is monitored by analysing pupil performance throughout the school.

Race equality

All pupils are entitled to a broad and balanced curriculum and have equal access. (See Race Equality Policy) We incorporate mathematics into a range of cross-curricular subjects and are looking at ways to introduce the multicultural aspects of mathematics e.g. Islamic patterns in RE.

Health and safety

We provide safe and healthy working conditions for all pupils and staff. Relevant procedures as laid down in the Health and Safety Policy will be followed. Pupils are taught to use hardware and equipment correctly.

(See Health and Safety Policy)

Transition

Opportunities to liaise with Beighton Nursery and Infant School are provided and links are encouraged through co-ordinator meetings, shared staff meetings and INSET days Y2 visit their new teachers in Y3. In Year 6 staff from several secondary schools visit to meet staff and teach their new intake. Transition units between Y6 and secondary schools are completed if required.

Parental Involvement

At Brook House Junior School we encourage parents to be involved by:

- meeting them twice yearly to discuss the progress of their child
- producing a detailed and comprehensive yearly report
- encouraging parents to help in classrooms
- informing them of work covered and methods used.

Children are set a weekly homework task in order to strengthen their learning in mathematics. This task directly links with the current unit of learning and is differentiated for each maths group.

Simon Smith - June 2015