Math's Policy

Hillborough Infant and Nursery School

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This policy has been updated to reflect the General Data Protection Regulation (GDPR) and Data Protection Act 2018, and it supersedes the HM Government Information Sharing Guidance for Practitioners and Managers published in March 2015.	

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1. Rationale

What is Mathematics?

MATHEMATICS is a body of knowledge which provides a way of viewing and making sense of the world. It is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real life problems. Mathematics also provides the means for creating new imaginative worlds to explore, and it is through this exploration that new mathematics is created and current ideas are modified and extended.

2. Aims

OUR AIMS IN TEACHING MATHEMATICS are that all children will: -

- To enjoy the subject and study it with a sense of achievement.
- To foster a positive attitude to mathematics as an interesting and attractive part of the curriculum.
- To develop the ability to think clearly and logically, with confidence, flexibility and independence of thought.
- To develop a deeper understanding of mathematics through a process of enquiry and investigation.
- To develop an understanding of the connectivity of patterns and relationships within mathematics.
- To develop the ability to apply knowledge, skills and ideas in real life contexts outside the classroom, and become aware of the uses of mathematics in the wider world.
- To develop the ability to use mathematics as a means of communicating ideas.
- To develop an ability and inclination to work both alone and cooperatively to solve mathematical problems.
- To develop personal qualities such as perseverance, independent thinking, cooperation and self-confidence through a sense of achievement and success.

3. Principles of the Teaching and Learning of Mathematics

MATHEMATICS is important because: -

- it is widely used in society, both in everyday situations and in the world of work ● it can be used to represent or communicate ideas, to predict, to explain and to verify
- it is interesting and enjoyable, providing intellectual challenge and aesthetic pleasure.

4. Knowledge skills and understanding

MATHEMATICS is a core subject in the National Curriculum.

In the Early Years Foundation Stage, the fundamental skills and knowledge of the subject are set out in The Early Years Foundation Stage Curriculum where they are categorized into 2 areas: -

1. Number
2. Number Patterns

The National Curriculum for mathematics aims to ensure that all pupils:

5. become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems overtime, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately;
6. reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language;
7. can solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

5. Strategies for the Teaching of Mathematics

The mathematics curriculum is organised on a discrete subject basis within the framework of the curriculum (although other subjects will often also include mathematical activities). Mathematics is taught: -

- as separate lessons in KS1 and Reception and Key Stage 1
- however, pupils in Reception and Nursery may visit their mathematics throughout the day in their child-initiated learning
- throughout cross-curricular opportunities which exist to extend and promote mathematics. Teachers seek to take advantage of all opportunities.
- Challenge and choice is used throughout the school to enhance the children's learning – hot/hotter/hottest

Mathematics is taught by Class Teachers, supported by Teaching Assistants, SENCO (the school's
Special Educational Needs Coordinator) and HLTAs (High Level Teaching Assistant)

THE EMPHASIS IN OUR TEACHING OF MATHEMATICS is based on that of the National Curriculum 2014 thus: -

- mental and oral calculations are practiced and developed in all lessons
- differing algorithms are taught to promote mathematical understanding (See Calculations Policy)
- standard written algorithms are introduced as reliable and efficient procedures for calculation (See Calculations Policy)
- the strand of "Using and Applying" runs through all aspects of the mathematics curriculum but it also receives discrete teaching time and has a high profile throughout our school.
- Information Technology (I.T) is used as appropriate to meet the objectives of the lesson.
  Direct whole class teaching can be achieved through timetabled use of the school's I.T suite.

THE MODES OF WORKING IN MATHEMATICS INCLUDE: whole class teaching with co-operative group work, individual work and setting used where appropriate. Mathematics lessons regularly include opportunities for: -

- Demonstration (using manipulatives), explanation and instruction by the teacher to the whole class, to groups, and to individuals

- whole class and group discussions
- whole class plenary sessions to consolidate the learning and prepare for future learning
- practical activities (using manipulatives), to provide meaningful context in a range of curriculum areas
- practice activities to consolidate skills which have been learned making use of manipulatives
- the use of a daily mental and oral starter session to rehearse and sharpen skills
- problem solving and investigational activities
- the use pictorial representations in maths books

6. Strategies for Ensuring Progress and Continuity

Planning.

Through careful planning and preparation, we aim to ensure that throughout the school children are given opportunities for:

- hands –on practical activities and mathematical games
- problem solving
- individual, group and whole class discussions and activities
- open and closed tasks
- a range of methods of calculating e.g. mental, pencil and paper and using a calculator
- working with ICT as a mathematical tool

Our school scheme of work is a working document and as such is composed of ongoing plans produced on a week by week basis. This is developed from the National Curriculum 2014 and Essential Maths from Herts for Learning and takes into consideration the needs of our children.

Calculations

Mental calculations strategies are taught throughout the school and children are encouraged to use these skills to solve problems using pictorial representations if appropriate.

Children are also taught written methods for calculations in line with the calculation policy and are encouraged to use these if they are unable to answer a question using their mental calculation strategies.

Strategies for the Use of Resources

CLASSROOM RESOURCES IN MATHEMATICS may include: -

- published scheme resources from the Herts for Learning Essential Maths planning
- a variety of equipment for measuring and data handling activities
- a variety of equipment for work on number, shape and space
- mathematical games and puzzles
- ICT equipment

CENTRAL RESOURCES IN MATHEMATICS are the responsibility of the Mathematics Co-ordinator who has a budget available. They are stored in the maths cupboard in the staff room and in each classroom they may include: -

- specialist resources likely to be used by all classes occasionally
- enrichment activities for more able pupils, generally investigational in nature
- reference books and guidance notes on various aspects of mathematics teaching

The Maths folder on the school server will include the planning for EYF, Year 1 and Year 2 from Essential Maths

INFORMATION TECHNOLOGY is a major resource which is used in mathematics for: -

- enabling routine tasks to be completed and repeated quickly, allowing the user to concentrate on thinking and on tasks such as analysing and looking for patterns within data, asking questions and looking for answers, and explaining and presenting results
- allowing pupils to access and to handle large amounts of information

- working with the whole class or a group for introducing or reviewing a topic and ensuring that all pupils cover the key conceptual features of the topic, e.g. through the use of a single screen or display

- supporting the development of mathematics through the use of computer programs, programmable toys and robots which develop and reinforce the use of mathematical language, and the recognition and exploration of numbers, simple mental operations and patterns

- allowing all pupils to access the curriculum and for challenge.

7. Feedback to pupils

Feedback to pupils about their own progress in mathematics is achieved through the marking of work. Effective marking: -

- aims to be encouraging, supportive and diagnostic
- includes the setting of small steps for the improvement of work
- includes ticks and written comments with errors clearly indicated (in line with the school marking policy)
- is often done while a task is being carried out through discussion between child and teacher
- ensures that corrections move the pupils' learning on.

8. Assessment

This section details the various assessment methods and practices used in Hillborough Infant and Nursery School through which we ensure that children are making appropriate progress and that the activities they take part in are suitably matched to their ability and level of development.

Formative Assessment (AfL) - (monitoring children's learning)

Assessment is an integral and continuous part of the teaching and learning process at Hillborough Infant and Nursery School and much of it is done informally as part of each

teacher's day to day work. Teachers integrate the use of formative assessment strategies such as: effective questioning, clear learning objectives, the use of success criteria, effective feedback and response in their teaching and marking and observing children participating in activities. Findings from these types of assessment are used to inform future planning.

Summative Assessment – (evaluating children's learning)

More formal methods are used to determine the levels of achievement of children at various times during the school year:

- Standardised Testing using NFER resources in KS1s are used throughout the year. They allow the school to measure each child's attainment in all areas of mathematics, and compare this with an "average" for children of that age. The results are used to monitor individual's progress year on year, to rank order a class and to identify those children who may require an intervention

- Statutory End of Key Stage Assessment. The National Curriculum requires that each child is assessed, and assigned a Level of attainment. This is to be carried out at the end of Key Stage One. The children will achieve either WT(working towards the expected standard),

EXS (working at the expected standard)or GDS (working at a greater depth of the standard)

9. Celebrating Achievement

ACHIEVEMENT IN MATHEMATICS IS CELEBRATED: -

- with the child verbally, and through written comment
- with parents through consultations and reports
- in displayed work (class and school)
- in sharing assemblies
- with certificates in Fridays celebration assembly
- with the wider community through displayed work.
- stickers and dojo points

10. Strategies for Recording and Reporting

RECORDS OF PROGRESS IN MATHEMATICS kept for children may contain: -

- records of their progress against the objectives set out in the KS1 National Curriculum and the progression of skills and knowledge
- records of their progress against the EYFS progression of skills and knowledge
- children's books (individual)
- SEN support plans as appropriate
- end of Key Stage Assessments
- end of year Teacher Assessment

REPORTING TO PARENTS is done on a twice yearly basis through consultations and annually through a written report. Reporting in mathematics will focus on each child's:

- attitudes to mathematics
- competence in the National Curriculum 2014 based on teacher assessments
- progress against the Early Years Foundation Stage Curriculum ● ability to apply mathematical knowledge to problem solving situations
- end of key stage S.A.T.s results.

11. Equal Opportunities

EQUAL OPPORTUNITIES for all children, regardless of race or gender or disability, are ensured by the rigorous application of the school's Equal Opportunities Policy.

Differentiation and support: (including provision for SEND, More Able, E.A.L and PP pupils

This is incorporated into all mathematics lessons and is done in various ways, such as:

- setting challenging age related knowledge, reasoning and problem solving tasks based on systematic, accurate assessment of pupils, knowledge and understanding;
- small, differentiated target steps for all children to move through at a pace that suits their needs;
- timely support and intervention; systematically and effectively checking pupils' understanding throughout lessons;
- ensuring that marking and constructive feedback is personal, frequent and of a consistently high quality – enabling pupils to understand how to improve and develop their work – with planned in time for children to respond to feedback;
- real life, practical links throughout all knowledge, reasoning and problem solving tasks, with whole class activities planned within each unit;
- range of practical-real life resources used to support all stages of learning within the class;
- regular homework set-differentiated through the aims; (knowledge, reasoning and problem solving)
- intervention programmes/extra teacher support delivered where needed both in class and through extra sessions planned outside the main teaching;
- visual stimulus/aids are provided for those with additional needs. **Homework**

HOMEWORK is used to support mathematics through tasks such as: -

- specific tasks set by teachers which may involve calculations based on that week's learning in school or consolidating previous learning.
- Purple mash may be used for homework alongside written work

12. The Role of the co-ordinator

THE ROLE OF THE MATHEMATICS CO-ORDINATOR is to: -

- Ensures teachers understand the requirements of the National Curriculum and helps them to plan lessons. Leads by example by setting high standards in their own teaching. ● Prepares, organises and leads CPD and joint professional development.
- Works with the SENCo and SLT.

- Observes colleagues with a view to identifying the support they need.
- Discusses regularly with the Head teacher and the mathematics governor the progress of implementing National Curriculum for Mathematics in school.
- Monitors and evaluates mathematics provision in the school by conducting regular work scrutiny, learning walks and assessment data analysis.

13. Health and Safety

HEALTH AND SAFETY ISSUES IN MATHEMATICS include: -

- use of equipment in accordance with Health and Safety requirements
- teaching the correct use of round ended scissors which are stored centrally within the class
- teaching the correct use of compasses which are stored centrally and in the class

14. Linked policy

- Calculation policy