BOYNE HILL SCHOOL

MATHEMATICS POLICY

National Curriculum 2014

'Mathematics is a creative and highly inter–connected discipline that has been developed over centuries, providing the solutions to some of history's most intriguing problems. It is essential to everyday life, critical to Science, Technology and Engineering and necessary for financial literacy and most forms of employment. A high quality mathematics education provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics and a sense of enjoyment and curiosity about the subject.'

Intent

Our focus at Boyne Hill in the teaching of mathematics is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources, for example, concrete objects and measuring tools. At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. They should also be more confident when reasoning and linking knowledge and be able to describe their thinking to others. They should have been taught to question and make links rather than follow set methods and to see how Maths is used in and can influence the wider world. We intend to:

- fulfil the requirements of the Early Years Foundation Stage Statutory Framework and the National Curriculum Programmes of Study for Mathematics;
- promote positive attitudes towards mathematics and an enthusiasm for mathematics work in school;
- encourage talk, reasoning and explanation skills in lessons, allowing the pupils to become confident and inquisitive learners of maths;
- create an awareness of the relevance of mathematics to the whole curriculum and to develop mathematical understanding through practical tasks, enquiry and investigation;
- provide a differentiated mathematics curriculum which meets the needs of all pupils by offering a broad and balanced range of activities in line with our 'Learning without Limits' strategy (see below);
- promote fluency in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately;
- provide a progressive development of mathematical concepts, knowledge, skills and understanding;
- encourage the use of IT in mathematics to analyse and communicate information;
- provide opportunities for pupils to acquire, practise and develop mathematical skills and to work as part of a class, a smaller group and independently;
- develop mathematical language and skills of enquiry to enable pupils to make deductions and links when learning and to share these ideas with the rest of the class;
- make sure pupils achieve their full potential in mathematics by the end of each Key Stage.

Implementation

In order to achieve the above intent, mathematics is taught daily, wherever possible, for between fifty minutes and one hour. Following the school's curriculum planning, teachers plan sequences of work linked to the key areas of maths, including:

- Number and Place Value
- Addition and Subtraction
- Multiplication and Division
- Measure
- Fractions
- Properties of Shape
- Position and Direction
- Statistics

In the Early Years Foundation Stage, teachers have access to Master the Curriculum. This commercial scheme has resources and lesson plans that can be adapted to suit the needs of the pupils and links with the White Rose scheme of work. In Key Stage 1, we have an internally written scheme that links to the outline of the White Rose scheme. The teachers also have access to the White Rose teaching resources but may draw on other resources as and when they feel it appropriate in order to meet the needs of the pupils in their class.

In the Early Years Foundation Stage, pupils learn maths in a wide range of contexts both indoors and outdoors with opportunities for drawing mathematical experience out of a wide range of activities. Continuous provision allows pupils to follow their interests and explore different aspects of mathematics independently.

In Key Stage 1, opportunities are provided for pupils to develop and apply their mathematical skills in other subject areas as appropriate to their learning needs and development. Mathematics has links with many subjects within the curriculum which will provide opportunities for discussion and for applying and using maths in real contexts, often in practical ways.

Learning without Limits

Boyne Hill School has adopted the 'Learning without Limits' strategy to all of our mathematical teaching. This was introduced in 2014 in order to remove differentiation based on a fixed mind-set of learning potential through ability grouping within each class and to enhance the learning experience as well as to empower the learners. Teachers plan 3 differentiated tasks for each main lesson and these are called 'challenges'. Green, Orange and Red challenges are presented to the pupils and modelled where appropriate. The pupils can then self-select their challenge linked to how confident they feel about the content. They are able to make one move if they are finding the activity too hard or too easy. Objectives are clearly presented in work books and this enables the class teacher to observe their choices over time and within different areas of maths. They also have the opportunity to emotionally respond at the end of the lesson activity. Pupils are encouraged to work collaboratively in lessons and share their knowledge with each other. They are encouraged to talk to the class teacher or support staff about their learning throughout lessons and gain support if needed. Adults within the class will then use the work books to make notes on the conversations that they have had with the children as well as any verbal feedback given or where extra support was needed.

Questioning

Pupils are encouraged to be inquisitive and enthusiastic learners of maths. They are encouraged to talk in lessons and share what they have found out. Lessons typically start with a 10 to 15-minute starter where concepts are introduced or rehearsed but throughout this, teachers will question the pupils on their strategies, their understanding and ask them to make links with what they have already learnt. They are also encouraged to question each other, discussing differences of opinions on different strategies and to develop a confidence in their own understanding, learning from mistakes and misconceptions and using them in a positive way.

Problem Solving and Reasoning

In all areas of maths, pupils are encouraged to explore concepts from different angles. From investigations and open ended tasks through to word problems using real life contexts, they are encouraged to look for key language to direct them to strategies that they can use to answer or solve problems. They are often encouraged to show working out and to verbalise their answers to peers or the whole class.

Homework

Pupils in Key Stage 1 are set maths homework each week. These tasks relate to the learning that they have received in class and are usually IT based using Purple Mash. They are offered suggested websites or games that can support learning and given practical tasks that can be done to improve arithmetic. There will also be paper based Maths challenges that will form part of the termly Maths homework. The school offers maths specific workshops to give the parents/carers the opportunity to see the strategies used in school to teach concepts to our pupils. We also have an open door policy which enables parents/carers to freely come and ask if they are unsure of how to support their child in their mathematical learning.

Inclusion

All pupils are given the same opportunities to choose their learning in maths lessons. They are encouraged to discuss their understanding and reasons for choices and support staff are deployed to where they are going to be most effective in lessons. Activities are planned, where possible, to link to topics to allow pupils to use their prior learning or to see their mathematical learning in a wider, real life context. Activities within maths are chosen carefully to suit different learning styles and resources are available for the pupils to self-select from.

Impact

Pupils' progress in mathematics is monitored on a regular basis through:

- teacher and support staff observations and discussions with the individual or group
- the choice of challenge that the pupil has chosen to undertake in the lesson
- the pupil's emotional response to the challenge/voice of the child
- marking of work
- summative assessment

Assessment results are carefully analysed to identify trends, strengths or weaknesses of any particular group of children so that adjustments can be made to planning and support can be directed appropriately.

Intervention

Analysed assessment data and teacher concerns are discussed termly in a pupil progress meeting with the Head Teacher and possible additional support may be proposed.
These may include:

- Focused individual support planned by the class teacher;
- Group work if there is a particular weakness with more than one pupil in the class;
- Challenge groups;
- Home-school support network.

Resources

The use of mathematical resources is integral to the concrete – pictorial – abstract approach and is planned into our learning and teaching. We have a wide variety of good quality equipment and resources, both tangible and IT based, to support our teaching and learning. These resources are used by our teachers and pupils in a number of ways including:

- Demonstrating or modelling an idea, an operation or method of calculation, e.g., a number line; place value cards; Dienes; money or coins; measuring equipment for capacity, mass and length; bead strings; the interactive whiteboards and related software; 3D shapes and/or nets; Numicon and related resources and software; multilink cubes; clocks; dice; number and fraction fans; individual whiteboards and pens; 2D shapes and pattern blocks;
- Enabling pupils to use a calculation strategy or method that they couldn't do without help, by using any of the above or other resources as required;
- Providing a context, where possible, and linking it to the application and practise of calculation strategies and number skills.

Teachers are encouraged to use the school playground as an outdoor classroom when possible, for example, when teaching length, area or perimeter. The pupils in Foundation Stage 2 and Key Stage 1 have a home log-in to Purple

Mash, an online resource which contains games that support the Mathematics curriculum. This is also used in school time on the laptops.

The role of the subject leader for Mathematics

- To be a lead teacher, offering advice and support to others and to model lessons when needed;
- To prepare, organise and lead training as necessary and to keep up to date with any changes in policy and new initiatives;
- To work co-operatively with the SENCo and other members of the Senior Leadership Team to ensure that the needs of all pupils are met;
- To monitor colleagues' teaching with a view to identifying the support and development they need and to support newly qualified teachers;
- To make sure that 'Learning without Limits' is being implemented effectively to enhance the pupils' experiences of maths in each classroom;
- To monitor learning and progress through data analysis and support where needed;
- To work in partnership with the Senior Leadership Team and school Governors to continually raise standards in Mathematics across the school.

<u>This policy will be reviewed biennially</u>

Last reviewed: October 2023