Mathematics Policy

Overview

This policy for Mathematics teaching and learning sets out the way in which we cover the curriculum for mathematics. Included in this policy are the following:

- Aims and Opportunities
- Organisation and Planning
- Links with other subjects and key competencies
- Roles and Responsibilities and Inclusion
- Assessment, recording monitoring and reporting

1) Aims and Opportunities

1. Aims

Mathematics is a key life skill used by everyone on a daily basis. It is essential that children gain competence in maths skills from an early age so that these solid foundations can be built upon as pupils move on up through primary school and on into secondary school, further education and the world of work.

At Brampton Abbotts we have adopted a flexible mastery approach to teaching maths as recommended by the National Centre for Excellence in Teaching Mathematics (NCETM). This mastery approach has the aim of exposing all children to the same curriculum content at the same pace. Differentiation is provided by offering rapid support both during and after lessons. The focus is on developing deep understanding and secure fluency with facts and procedures. An approach based on mastery means that children should 'acquire a solid enough understanding of the maths that's been taught to enable pupils to move on to more advanced material' (NCETM website).

Our aims:

- An expectation by teachers and staff that all children are capable of achieving high standards in mathematics.
- The majority of children will progress through curriculum content at the same pace with provision for intervention by emphasising deep knowledge and through individual support and intervention.
- Challenging pupils who grasp concepts quickly through rich and sophisticated problems rather than acceleration through new content. Pupils who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.
- Building fluency through regular practice and consolidation of key maths knowledge (times tables, number bonds, counting etc) and procedures (calculation methods etc).
- Teachers use precise questioning in class to test conceptual and procedural knowledge, and continually assess pupils to identify those requiring intervention so that all pupils keep up.
- To develop a rich use of mathematical vocabulary with teacher modelling and children verbalising their understanding using the correct vocabulary.
- To engender all our children with the confidence to use their mathematical knowledge

and understanding with fluency and accuracy. In teaching mathematics we need to ensure that all children develop the ability to think logically and clearly, and are able to communicate this using mathematical language.

- We also aim to engender a fascination and enthusiasm with the subject through practical activity, exploration and discussion.

1.2 Opportunities

Mathematics offers many opportunities in all subjects.

Some examples are:

- English – spelling and grammar using mathematical terms and vocabulary; use of properly written times; measurements of quantities, distance, length/width/height, capacity/volume, weight/mass; duration etc.
- Science – maths is integral and inseparable from science learning and recording! The examples and possibilities are endless.
- Geography – although a humanity, geography is also considered to be a 'social science' providing many opportunities for measurement and data collection and analysis both in fieldwork and in the classroom through research.
- History – the obvious use of maths is in relation to dates and the passage of time including use of timelines. In addition there are many opportunities when it comes to study of populations at different times, size of towns/settlements, measurements associated with journeys/voyages etc.
- Design and Technology – many practical opportunities particularly involving measurement and scaling in design work as well as transfer of these to materials used in making; use of measurements in Food Technology; calculations and measurements when exploring electricity.
- Art and design – measurements/ ratios.
- Music – beats, rhythms, time signatures, pitch

2) Organisation and Planning

2.1 Time allocation

KS1 – maths will be taught for at least 3.75 hrs per week. KS2 – maths will be taught for at least 5 hours per week.

Time allocation assumes in KS1 a 45min/day teaching slot and in KS2 1hour per day However, at the teacher's discretion these slots may be of different lengths dependent upon the nature of the topic and activities involved. Within limits, slots may be combined to enable days when an entire morning or afternoon is given over to maths so that a similar portion of a day may be given over to another subject eg. English or science.

2.2 Planning

The White Rose Maths scheme of work provides the framework for learning and teaching mathematics at Brampton Abbotts. This scheme is based on and underpinned by NCETM (National Centre for Excellence in Teaching Mathematics) – it is a 'mastery' scheme. We enhance and enrich our learning with materials taken from and inspired from NCETM itself as well as other sources such as 'NRich'. In addition we use Third Space Learning and Times Tables Rock Stars (amongst others) to practise and improve fluency particularly in KS2.

Although taught in combined year groups, we do not use a 2-year rolling programme in teaching maths. The White Rose curriculum is a cumulative curriculum which means that each topic is revisited many times in different contexts and in different years.

2.3 Differentiation

Differentiation is achieved in a range of ways:

- Through carefully planned questioning. Precise questioning during lessons ensures that pupils develop fluent technical proficiency and think deeply about the underpinning mathematical concepts. The questioning and scaffolding that individual pupils receive in class as they work through problems will differ, with higher attainers challenged through more demanding problems which deepen their knowledge of the same content.
- Through procedural variation which either seeks to support learners through small steps or extend them by making links requiring larger steps in their learning.
- By exposing children to a range of activities to develop fluency, reasoning and problem solving.
- By exposing children to a range of problem solving activities which require a varying depth of learning.

As previously stated, the White Rose scheme of work forms the basis for sequencing lessons. A White Rose lesson will often be used either in its entirety or partially but in addition teachers may modify lessons or teach different lessons that fall within the unit focus.
When planning lessons teachers will follow these guidelines:

- where possible, start from pupils' own experiences, interests and prior learning
- revisit and build on pupils' prior knowledge, understanding and skills
- organise learning around questions that engage and challenge all pupils
- make it clear what and how pupils are expected to learn and what they are expected to improve
- give clear explanations using relevant examples and analogies
- use a wide variety of resources and approaches
- encourage pupils to think for themselves
- demonstrate how pupils can communicate their findings in a variety of ways
- encourage pupils to be reflective learners who recognise the 'struggles' they've had and ways in which they have had to be resilient and resourceful in their learning

2.4 The learning environment

Displays and noticeboards - We aim to provide a learning environment where children feel inspired by and engaged with mathematics and relevant number-work. We will do this through providing imaginative maths images and interesting classroom displays that contain information relevant to specific units of study at the time as well as general reference information eg. numberlines, times tables, number words, general maths vocab. etc.
Maths apparatus and equipment – All maths learners should have access to suitable 'concrete' apparatus to support them in their learning. This applies to both Key stages as well as EYFS, although the use of manipulatives is more prominent the lower the age of the learners. Learners

should have a good knowledge of what equipment they can/should use to help them with a particular activity or problem
and know where to find it. Dependent on the age of learners and the maths focus at the time, maths equipment may be 'out' rather than in trays or cupboards.
ICT, iPads, touchscreen 'whiteboards' – all classrooms are equipped with touchscreens linked to a classroom computer. Staff will use these frequently and regularly to enhance and present information to the learners. This may be through the use of dedicated maths software or through the use of online resources and websites and videos (eg White Rose teaching videos). All classes are equipped with iPads that have suitable age group maths apps installed. Teachers are able to determine the apps that are installed and allocate regular times when these apps can be used. The use of maths apps and websites particularly for practising fluency (eg TT Rock Stars) is a powerful tool in enhancing and driving maths learning forward.

2.5 Management and organisation of resources

Individual classes will have some maths equipment particular to their age groups or allocated to their class. Communal maths resources are kept in two specific locations outside of classrooms: in the tray unit next to the network printer/photocopier; in the large cupboards in the kitchen.

3) Links with other subjects and key competencies

3.1 Links with other subjects

Links can easily be made between maths and all other subjects. These links are clearly more obvious between maths and certain other subjects where maths is integral eg. Science. Whether it be writing the words for numbers or performing relatively complex calculations and data recordings, there is a place for maths links across the curriculum.
Below, the table shows maths skills and competencies and where they are most obviously suitable/evident in other subjects:

Counting	Writing numbers; maths vocab	Calculating and arithmetic	Data recording and analysis	Shape and space	Measuring height length, distance	Time	Measuring quantities
Science Geography Art & design D&T Computing PE Music	Science English Geography History Computing RE	Science D&T Geography Computing	Science Geography History	Science Geography D&T Computing PE	Science PE D&T Art & Design	Science PE History RE	Science D&T Art & Design

3.2 Key Competencies

Positive Learning Behaviours - At Brampton Abbotts we are working on developing all children's approaches to their learning. This means that we integrate four key areas of learning that we refer to as 'Positive Learning Behaviours'.
These are:

- Growth Mindset
- Resilience
- Meta-cognition
- Emotional well-being

We actively look for opportunities to develop these key competencies through all subject curriculums.

4) Roles and responsibilities and Inclusion

4.1 Subject leader

The subject leader will:

- Support all teachers to inspire learning through bringing a subject alive for our children
- Monitor and evaluate the learning and teaching of the subject within the school
- Devise action plans to show future developments and review progress
- Provide specialist support and guidance to colleagues on teaching projects and planning
- Purchase and organise resources and maintain equipment to make them easily accessible for colleagues
- Attend courses for CPD and report back to staff; support staff CPD where appropriate
- Explore ways to raise the profile of the subject within school
- Make colleagues aware of opportunities for trips/ fieldwork relevant to the subject.
- Research and source high quality resources including visiting experts.

4.2 Class Teachers

All class teachers will have responsibility for planning and teaching the subject to their classes in accordance with the guidelines laid out above. Where necessary they will adapt and modify planning to take account of topical issues whilst ensuring that all objectives of the 2014 National Curriculum maths for the relevant Year groups are covered so that progression across year groups and Key Stages is maintained.

4.3 Link Governor

The subject link governor will monitor the effectiveness of the maths policy and hold the head teacher to account for its implementation.
The governing body will also ensure that (for all subjects):

- A robust framework is in place for setting curriculum priorities and aspirational targets
- Enough teaching time is provided for pupils to cover the National Curriculum and other statutory requirements
- Proper provision is made for pupils with different abilities and needs, including children with special educational needs (SEN)
- The school implements the relevant statutory assessment arrangements
- It participates actively in decision-making about the breadth and balance of the curriculum
- It fulfils its role in processes to disapply pupils from all or part of the National Curriculum, where appropriate, and in any subsequent appeals

4.4 Inclusion

Wherever and whenever appropriate, a wide range of cultural images and contexts will be used in all subjects, and we will use these opportunities to challenge stereotypes. For all children to produce their best, we plan differentiated resources and tasks through:

- Adapted worksheets
- Changing the demands of a task
- More limited choices
- Greater teacher intervention, small group work and teaching assistant support

- Ensuring manipulative skills needed are manageable
- Teachers should challenge higher-attaining pupils by expecting them to interrogate more demanding sources, by expecting them to work with greater independence and by raising expectations about how they might communicate their ideas;

5) Assessment, recording, monitoring and reporting

5.1 Assessment and recording

Teachers continually assess pupil progress and understanding through questioning and conversations during lessons. At the end of a unit of work, teachers use a White Rose unit assessment task/test to inform their assessment of a pupil's understanding. The results of these tests are recorded on Insight Tracker. In all year groups, teachers make termly assessments of pupil attainment in the subject overall and this is recorded on Insight

In addition to statutory tests in KS2 (Y4 multiplication check and Y6 SATs), teachers will set an end of year maths test(s) which will be recorded on Insight. This may be a White Rose or other test depending on preference and suitability.

Subject Leader monitoring activity

The subject leader will, once a year, review the subject. This process is outlined in the 'Overview of subject reviews' document in the Curriculum M&E Folder on the shared OneDrive.