



MATHEMATICS POLICY

Reviewed September 2024 C.Zadrozny



The National Curriculum states that:

“Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution 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 therefore 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.”

Rationale

At our school, we see Maths very much as a multi-discipline, cross curricular, interconnected subject which should encourage creativity. Much of our learning revolves as much around the discussion about Maths between talk partners as it does the completion of calculations. We want the children to see Mathematics as being relevant to their world and applicable to everyday life as well as being something that they will need as they move on through their school life and ultimately to the world of employment. To that end, a high-quality, inter-related and creative Maths experience should be one that develops the children’s ability to think mathematically and one which allows them to apply the tools to which they have been exposed in a variety of ways.

Following the introduction of the National Curriculum in 2014 the emphasis has been to ensure that all children:

- ***Become fluent***
- ***Reason and explain mathematically***
- ***Can solve problems***

This means that children need to be regularly exposed to opportunities involving increasingly complex problem solving which allows them to apply their Maths knowledge. In doing so, they should be encouraged to develop an argument and line of enquiry which they can ‘prove’ and ‘justify’ using mathematical vocabulary. This includes the ability to break down problems, both routine and non-routine, into a series of steps.

1 Legislation and guidance

This policy reflects the requirements of the [National Curriculum programmes of study](#), which all maintained schools in England must teach.

It also reflects requirements for inclusion and equality as set out in the [Special Educational Needs and Disability Code of Practice 2014](#) and [Equality Act 2010](#), and refers to curriculum-related expectations of governing boards set out in the Department for Education's [Governance Handbook](#).

In addition, this policy acknowledges the requirements for promoting the learning and development of children set out in the [Early Years Foundation Stage \(EYFS\) statutory framework](#).

2. Roles and responsibilities

2.1 The governing board

The governing board will monitor the effectiveness of this policy and hold the Executive headteacher to account for its implementation.

The governing board will also ensure that:

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)

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

2.2 Headteacher

The headteacher is responsible for ensuring that this policy is adhered to, and that:

All required elements of the curriculum, and those subjects which the school chooses to offer, have aims and objectives which reflect the aims of the school and indicate how the needs of individual pupils will be met

The amount of time provided for teaching the required elements of the curriculum is adequate and is reviewed by the governing board

Where appropriate, the individual needs of some pupils are met by permanent or temporary disapplication from all or part of the National Curriculum

They manage requests to withdraw children from curriculum subjects, where appropriate

The school's procedures for assessment meet all legal requirements

The governing board is fully involved in decision-making processes that relate to the breadth and balance of the curriculum

Proper provision is in place for pupils with different abilities and needs, including children with SEN

Teachers

Teachers are responsible for:

- Planning appropriate sequences of learning which fully cover the National Curriculum
- Teaching well-planned and resourced lessons which meet the needs of all learners
- Monitoring the progress of each individual pupil
- Addressing areas of misconceptions/ gaps / weaknesses
- Carrying out end-of-unit assessments and using these to inform planning
- Inputting data 3x a year based on teacher assessment
- Giving feedback - both verbally and in written format following the feedback policy

Intent

3. Mathematics Curriculum Intent

Our curriculum aims/intends to ensure that by the end of KS1, our pupils have established a solid foundation in the basic skills and concepts across place value, addition, subtraction, multiplication, division, measures, shape and statistics.

The secure understanding of these aspects will provide them with all the relevant skills necessary to transfer to KS2 with the confidence to achieve.

Our curriculum aims/intends to ensure that by end of KS2, our pupils will have mastered the following aspects:

- an understanding of how maths is used in everyday life
- an appreciation of the power of mathematics in the wider world
- a sound conceptual understanding (a deep understanding of the number system, shape, space and measures)
- become fluent in the fundamentals of maths (4 operations)
- use increasingly sophisticated mathematical vocabulary
- be fluent in the use of skills and mathematical knowledge (number sense)
- be able to solve a range of increasingly sophisticated problems using a variety of representations
- be able to apply their mathematical skills, knowledge and understanding across the curriculum as appropriate

Throughout our maths curriculum we aim to thread our school values of respect, resilience and responsibility so the children have a positive attitude to succeed and enjoy maths. They will be able to transfer the skills, knowledge and understanding they have learnt into further areas of maths and wider-world situations as they get older.

4. Implementation

Organisation

- Maths is taught daily across each year group
- It is taught as a discrete subject thus allowing specific mathematical knowledge, skills and understanding to be developed
- The use of a range of teaching strategies in Maths is encouraged to deliver the Mathematics curriculum
- Coherent links are made to other curriculum areas where appropriate

- Additional sessions are used to consolidate fluency (Maths Meetings / Catch-up/Pre-teach sessions)

Planning

Mathematics planning is carried out in three phases: long term plans, medium term plans and unit plans.

Long and medium term plans are adapted from the White Rose Maths resources. Teachers use these as a base for their sequence of lessons throughout the year. When taking on a class, teachers work with the previous class teacher to understand the pupils' strengths and weaknesses which are then incorporated within the long term plan. Therefore learning aims are set out for the whole year. However these plans are constantly reviewed based on the teaching sequence and ongoing assessment.

Each year, classes start off with four weeks of place value teaching to revisit and embed these crucial ideas. After this, year groups will work through the mathematical units in a logical sequence (eg. addition and subtraction, leading to multiplication and division, leading to fractions) so that skills and learning can be progressively built upon. During this time teachers will revisit place value as it links to many other areas of maths that rely on its understanding.

The class teachers' unit plans list the specific learning objectives throughout the topic so that the sequence of learning is clearly mapped out. Planning incorporates any evident gaps that have been identified as a result of the ongoing assessment process. Teachers plan using problem solving as an end-goal (of either a lesson or series of lessons) so that pupils are consistently given opportunities to apply their skills, knowledge and understanding across different mathematical topics. The learning prior to the problem solving element is structured to equip pupils with the skills and knowledge to then be able to tackle the problems successfully. This stage will be scaffolded as necessary to ensure all pupils can achieve a sense of accomplishment.

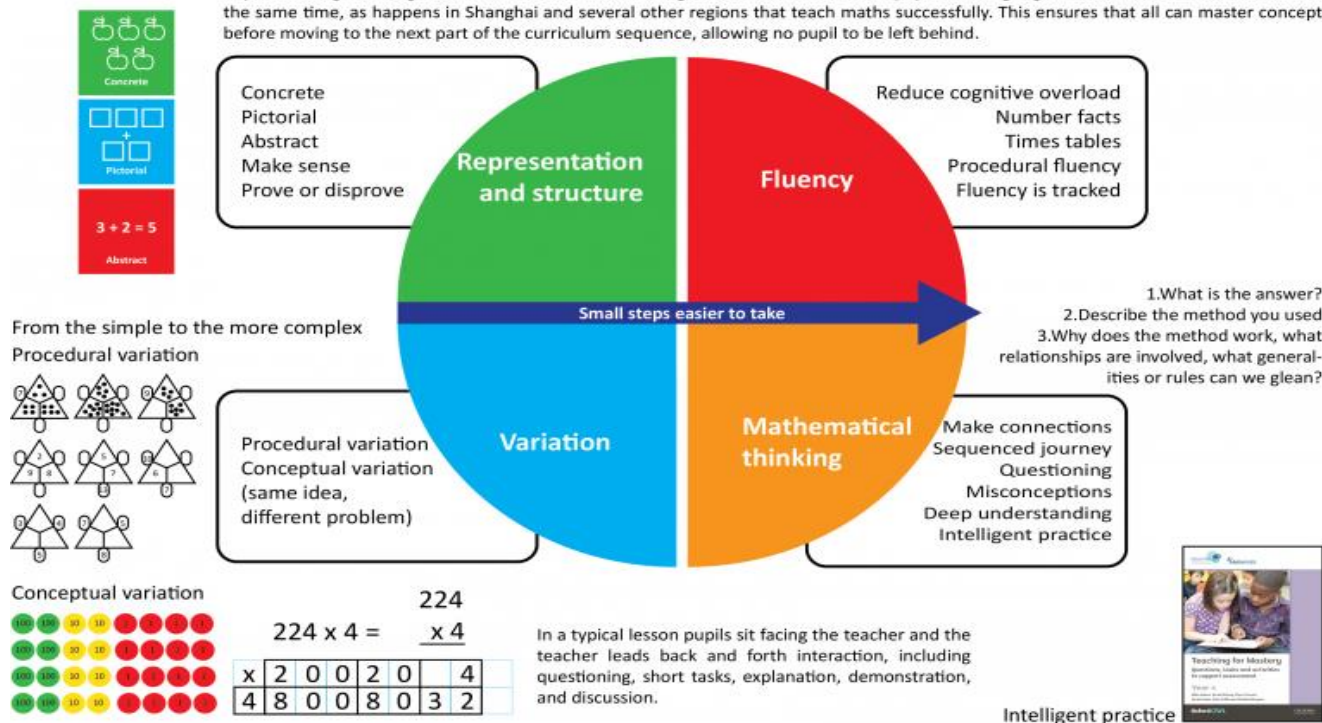
The use of 'Mastery Approach'

Our *rationale* for using the 'mastery approach' is that we want to maximise children's chances of success by developing a deep and lasting understanding of mathematical procedures and concepts.

See: The essence of maths teaching for mastery

Maths Mastery

Pupils are taught through whole-class interactive teaching, where the focus is on all pupils working together on the same lesson content at the same time, as happens in Shanghai and several other regions that teach maths successfully. This ensures that all can master concepts before moving to the next part of the curriculum sequence, allowing no pupil to be left behind.



The key idea of mastery is that pupils gain a deep understanding of the mathematical concept being taught, so that they can apply it to new situations and contexts. We want to see learners representing maths in different ways – using concrete, pictorial and abstract representations. We also want pupils to be able to make connections between mathematical concepts and use vocabulary accurately to explain and reason. We provide the opportunities to solve real-life problems (which provide context and purpose) and also puzzles, problems and investigations which promote deeper mathematical thinking.

We ensure that we have high expectations and aspirations for all of our pupils, supporting them to make good progress, relative to their starting points. We aim for all pupils to achieve a high standard in maths. We recognise that whilst the majority of learners will progress at the same pace, some pupils may require additional support. Learning may be adapted to provide scaffolding for those pupils to enable them to achieve. Fluency is taught through essential practice and consolidation tasks, teaching conceptual understanding through multiple representations and dealing with misconceptions immediately. Those pupils who have achieved fluency can move on to the application of skills in different contexts. More able learners are challenged through higher order questioning and rich tasks that develop problem solving and reasoning skills. No one moves onto a higher year group's objectives, everyone works on the same concept, and it is possible to provide whole class lessons but with different levels of support and challenge.

We recognise that not all the children learn in the same way and that they may need further support to reach the mastery endpoints. For some children a greater emphasis on using concrete and pictorial representations is necessary to reach this stage.

Supporting children to link concepts to relevant real world experiences will help them to 'prepare for adulthood'.

Teaching approaches

We aim for our curriculum to be inclusive to all learners within the school. This means that within lessons different teaching approaches will be considered so that all children are able to take part and show progress. Our use of the concrete, pictorial abstract approach (CPA) will give learners at different stages of their understanding access to the objectives of the lesson. To support this Individual, paired and group work are used across a series of lessons.

The CPA approach is a system of learning which uses physical and visual aids to build children's understanding of abstract topics and concepts.

Concrete: Using physical objects to solve maths problems

Pictorial: Using pictures and drawings to solve maths problems

Abstract: Solving maths problems using only numbers and symbols.

The ultimate aim is for children to be confident using abstract symbols and representations to solve maths problems.

Concrete and practical will be used in EYFS and KS1 in every lesson. As children move through school it will be used more to introduce new learning or a new concept with the aim that they will move onto the abstract learning as a unit progresses.



Online Platforms:

We use *TT Rockstars* throughout KS2 to support times table acquisition. This can be accessed both at home and at school.

Additionally, we use *Freckle* which is linked to the STAR tests (Renaissance – see below). This provides pupils with various mathematical activities. There is some basic fluency practice and also an adaptive maths programme which links to the STAR tests. Thus provides extra practice in areas which the test flags up.

In KS1 and F2, there is a *Numbots* programme which the children follow. This provides opportunities to practise subitising, number bonds, additive facts etc.

5 Assessment

A week or two after finishing each block/unit of work, the children will be given an end-of-unit assessment which will check their understanding only of the unit they have already been taught. This way the teacher can assess whether any gaps remain and can plan to address these, either through targeted intervention, additional whole-class maths sessions.. This ensures that gaps are monitored and addressed quickly.

Statutory Assessment in Mathematics

Year Group	Assessment
EYFS	GLD – Number / shape, space, measures
KS1	Teacher assessment
Y4	Multiplication Check
KS2	SATS – Formal testing

Non-statutory Assessment in Mathematics

Teachers in all year groups maintain an assessment grid (using an online tracking system) which tracks the children's overall progress and understanding across a range of assessment objectives derived from the National Curriculum.

We also use the STAR assessments from Renaissance Learn to test the children's mathematical ability. This is a great way to discover gaps in the children's understanding, which can then be individually targeted through interventions and home learning practice.

Both these sets of data are collected formally at three points in the year and formal discussions take place in the form of Pupil Progress Meetings with SLT. The outcomes of these meetings are then fed back into planning to ensure that the pupils are able to make good or better progress.

Interventions

Various mathematical interventions take place within the school day and also as 'extra-curricular' activities. Pre and post-school Maths boosters are delivered to Y2 and Y6 pupils to targeted groups in order to consolidate learning.

After school boosters and 1:1 tuition is delivered by teachers to further consolidate learning.

Across other year groups the National tutoring program is also utilised to catch-up and consolidate learning.

Progression in Mathematics

The Progression in Written Calculations (Appendix 4) and Mathematics Progression documents ensure progression and consistency throughout the school in the written methods of calculation and reflects a whole school agreement.

6 Inclusion

Disadvantaged Pupils (Social Justice)

To support our disadvantaged and vulnerable pupils and ensure provision is both targeted and tailored (e.g. activities broken down into smaller steps)

Pre-learning and post-learning activities support teaching and learning for our disadvantaged children

To develop children's knowledge, skills and understanding, improving and cultivating pupils' vocabulary staff and pupils are using a variety of 'closing the gap' vocabulary strategies, as supported by Alex Quigley.

SEND pupils

All pupils are included in all that we do. Additional resources-electronics resources, scaffolds, visual aids are used as appropriate. Additional adults and peer support may also support SEND pupils.

Teachers set high expectations for **all** pupils. They will use appropriate assessment to set ambitious targets and plan challenging work for all groups, including:

More able pupils

Pupils with low prior attainment

Pupils from disadvantaged backgrounds

Pupils with SEN

Pupils with English as an additional language (EAL)

Teachers will plan lessons so that pupils with SEN and/or disabilities can study every National Curriculum subject, wherever possible, and ensure that there are no barriers to every pupil achieving.

Teachers will also take account of the needs of pupils whose first language is not English. Lessons will be planned so that teaching opportunities help pupils to develop their English, and to support pupils to take part in all subjects.

Further information can be found in our statement of equality information and objectives, and in our SEN policy and information report.

7 Monitoring arrangements

Governors monitor coverage of National Curriculum subjects and compliance with other statutory requirements through: such as school visits, meetings with the school council,

Curriculum leaders monitor the way their subject is taught throughout the school by:

Deep dive methodology, planning scrutinies, learning walks, book scrutinies, use of a monitoring template

Monitoring by Subject Leads alongside Teachers

This will be measured by looking at the following across school

- What are the strengths / weaknesses of the subject?
- Attainment on entry compared to attainment on exit
- Quality of teaching and quality of learning – lesson observations and work book scrutinies
- Is there a clear focus on the depth of learning?
- Does learning build on prior knowledge/understanding?
- Does learning support all pupils?
- LTP intentions match what is seen in books and lessons
- Appropriate sequencing?
- What does monitoring say about how well pupils are achieving and are there any underachieving groups:

Focus on SEND disadvantaged, MEG AGT pupils

- What CPD/resources are needed for staff?

8 CPD

- Regular PDMs focusing on Maths
- Developing Mastery Project by NCETM (Maths lead plus one Teacher)
- Working alongside a Maths consultant (Jamie Heathcote) within year group teams
- Teachers and Teaching Assistants attend bespoke training to suit the needs of the school/cohort
- Subject Leader Network Meetings are provided termly and hosted by Lead Mathematics Teachers from the Maths Hub/NCETM.

- Working in subject teams across the federation also supports subject leads in sharing ideas and workload.

9. Links with other policies

EYFS policy

Assessment policy

SEN policy and information report

Equality information and objectives

Calculation policy

Teaching and Learning policy

Marking policy

Homework policy

Inclusion policy

Progression Documents

Data Protection Statement

The information gathered here will be used solely for the purpose stated above. It will:

- Only be held by class teachers
- Only be accessible to school staff involved with this activity
- Shredded upon return to school
- Be used to update our records if it contains more accurate data

Data Protection Statement: The information gathered here will be used solely for the admissions' purpose. It will be held on our school information system (SIMS)

Only be held by class teachers

- Accessible to relevant school staff
- Paper copies will be shredded once the relevant information has been uploaded onto our SIMS systems
- Be used to update our records.
- Be transferred when a child moves to a new setting