



Maths Policy

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Signed by Headteacher	
Signed by SLT	
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New York Primary School Maths Policy

Mission

***New York School Mission Statement:
“Come as you are – Leave at your best”***

Rationale

At New York, we aspire to a learning environment where pupils take ownership of their learning. Our vision is to create a school where children are engaged in, and excited by, their learning and where adults are supported and enabled to provide the highest quality learning experiences for children. We aim to show the interconnected subject links within mathematics to pupils through the STEM work that we do. Pupils must make deep connections in mathematics to develop fluency and reasoning skills, vital for their future lives.

Aims

At New York we aim to promote high achievement in mathematics by providing pupils with engaging tasks that challenge, stimulate and promote curiosity in the subject. Mathematics is essential to everyday life, critical to science, technology and engineering and is necessary for most forms of employment. A high-quality education in mathematics is therefore essential in order for children to develop their ability to calculate, to mathematically reason and to solve problems. Through their growing knowledge and understanding, children learn to appreciate the importance of mathematics in every-day life. We will challenge, question and support pupils to ensure that they develop into successful learners and confident individuals.

At New York we aim to:

- promote enjoyment in mathematics and develop a positive attitude towards the subject, where children aspire to be challenged and become curious about the subject;
- develop fluency in the fundamentals of mathematics so that children develop conceptual understanding and procedural understanding. This will allow children to recall and apply knowledge rapidly when given increasingly complex problems.
- develop a deep conceptual understanding of mathematics through practical activity, exploration and discussion;
- develop logical thinking and reasoning skills so that children have an ability to express themselves fluently, using correct mathematical language and vocabulary. Children need to be able to justify and prove using mathematical language and use full sentences in their answers.
- ensure that pupils understand the links and relationships within mathematics;
- promote confidence so that children are resilient in their approach to mathematics. Children need to be able to solve problems with increasing sophistication and need to persevere in seeking solutions;

- develop the ability to solve problems through decision making, team work and investigative approaches, following lines of enquiry;
- show links to other areas of the curriculum, in particular through the STEM work that we do;
- show the links with real-life that mathematics has to offer and to understand the importance of these skills.
- develop a deep understanding of number sense through the Mastering Number work we do in EYFS, Key Stage 1 and Key Stage 2.

Roles and responsibilities

The Maths Subject Leader is responsible for improving the standards of teaching and learning in Maths through:

Monitoring and evaluating Maths:-

- pupil progress and attainment through book scrutinies and data evaluation
- provision of Maths (including Intervention and Support programmes)
- the quality of the Learning Environment;
- the deployment and provision of support staff
- taking the lead in policy development
- auditing, purchasing and organising resources
- keeping up to date with recent Maths developments

The Assessment Coordinator will also support in monitoring standards of pupil progress and attainment through data analysis.

The SEND Coordinator will support with Maths provision, including intervention programmes.

Actions

The Maths Coordinator will be responsible for writing the STEM School Development Plan and feeding back to the SLT on targets. The Maths Coordinator will carry out book scrutinies, lesson observations and learning walks, in line with the SDP targets. The Maths Coordinator will carry out annual resource reviews and order necessary supplies.

We have moved into our Mastery approach at New York Primary School and were part of the Great North Maths Hub Teacher Research Group, which supports us on our journey. We are currently part of the Sustaining Mastery group. As part of this work, we focus on the five main elements of the Mastery approach at New York:

- representation and structure
- variation
- fluency
- mathematical thinking
- coherence

With this mastery approach, we use flipcharts to lead pupils through a lesson, ensuring that we show variation of a concept. Alongside these visual representations, we use starter sentences to support the development of pupil language. Fluency is developed through the

routines that we are adopting in school (see below) and we aim to gain the coherence from bringing these routines together.

There are a wide range of mathematical resources available to every class and it is the role of the co-ordinator to ensure that there is a sufficient amount. All classrooms have a range of small apparatus and equipment to support learners when carrying out mathematics. IWB and visualisers are available in classrooms. Calculators and a range of ICT software are available to pupils including access to 'Doodle Maths' for pupils in Reception – 2, 'Mathletics' for Year 6 pupils and 'Timestable Rockstars' for pupils in Key Stage 2.

STEM themed days / activities / events are planned by the Maths co-ordinator in order to enhance the learning of STEM subjects, and how these link to mathematical skills. During these planned events, children from the Foundation Stage to Year 6 will have the opportunity to work alongside scientists, engineers and mathematicians to engage in practical challenges and take part in whole-school events.

Teaching and Learning

At New York we use a range of teaching styles to suit the range of learning styles and allow for variation within maths. Our principle aim is to deepen children's conceptual understanding of mathematics through the use of representations of mathematical ideas. We do this through the use of practical resources such as Diennes, Gattegno charts, Cuisenaire rods, tens frames, rekenreks, Numicon, place value counters and the Singapore bar. Children move from the concrete ideas, to pictorial and finally to the abstract. Every class has a daily mathematics lesson that has a high proportion of whole-class and group-directed teaching. Basic skills are taught on a daily basis to support fluency in the understanding of concepts such as number bonds, counting and times tables.

Teachers make decisions about when to progress to new content, ensuring that learners are secure in their understanding of a concept. Pupils who rapidly grasp new concepts are challenged through the use of reasoning problems before going on to new content.

During lessons we encourage children to answer as well as ask mathematical questions and we have a focus on vocabulary in every lesson. Learners are encouraged to respond in full sentences. Learners in every class have access to a wide range of resources such as number squares, number lines, place value counters, digit cards and small apparatus to support their work. Children and staff use ICT in mathematics lessons where it will enhance learning and model methods and ideas.

Teachers ensure that lessons are subtly differentiated so that all learners are catered for in classes that have children of differing mathematical ability. Reasoning is recognized as an important skill in every class and children are encouraged to discuss their work on a daily basis. #Challenges are used to support children in their reasoning skills. Children respond to these by proving a statement or showing how they have got to their conclusion.

Routines

- COW (Check our Work) time is used for children to reflect on their learning.

- retrieval practise at the beginning of every lesson to support fluency in basic skills and prior learning.
- daily multiplication tables with visualizations are used.
- Inverse operations to be shown alongside calculation work to ensure coherence in mathematical thinking.
- mini-plenaries that progress learning are to be carried out in every lesson, challenging pupil's mathematical thinking and allowing them to see links between concepts.
- reasoning routines used by every class.
- Doodle Maths to be completed once per week from Reception – Y2 to support with fluency of mathematical thinking.
- Times table Rockstars to be used once a week in Key Stage 2 to support times table knowledge.
- Gattegno charts to be used for place value work In Reception upwards to support with representation of ideas.
- Variation shown on flipcharts to lead learning through a lesson.
- Hi-5 / Maths meetings to be carried out to support learning once a week in Y2 upwards.
- Counting to happen on a daily basis, teaching children how to count and using visual representations to support with this.
- White Rose Maths to be used to support progression through year groups.
- Times table homework to be sent home in Key Stage 2.

Assessment and Target Setting

Assessment will be carried out in the following ways:

- assessment for learning.
- Aspire done with updates by the Class Teacher upon completion of a unit.
- Marking work – verbally or written.
- PUMA assessments at the end of each term.

Daily Assessment for Learning will take place with a green highlighter showing Learning Objectives having been met and a pink highlight to indicate a challenge or further question. Children will be given COW (Check Our Work) time to respond to the questions using a green pen when necessary.

FFT Aspire will be analysed by the Assessment Coordinator and Maths Coordinator. Termly pupil progress meetings are carried out by the SLT to ensure interventions are in place for identified children. Maths data is to be kept by Class Teachers in their Assessment Files.

Targets are displayed at the front of Maths books with a clear list of the yearly expected objectives. These will be highlighted when the Class Teacher is confident that a pupil is secure at a particular statement:

- Autumn Term to be highlighted by green pen
- Spring Term to be highlighted by yellow pen
- Summer Term to be highlighted by pink pen

Inclusion

Inclusion at New York is a responsive quality provision for pupils with SEND and is a core value within New York Primary School. The application of the Maths policy reflects that value with teacher and support staff are deployed to provide planned, targeted support to identified pupils, including resources and technologies to aid and enhance their learning.

Outdoor learning

At New York Primary School we believe that the outdoor learning environment is an integral part of pupil learning and development. It can provide relevant, engaging experiences that support learning in all areas of the curriculum. Within Maths, outdoor learning opportunities are planned and provided including measuring in context, understanding angles and calculations using resources on the playground which promotes contextual learning and develops enquiry-based skills, communication, imagination and co-operation. Such positive opportunities promote active learning for all.

Technology

Technology at New York is increasingly important and an integral part of any curriculum. Computers and technology will be used in a variety of ways to deliver engaging and interactive lessons and tasks relating to the Maths subjects. Technology that supports Maths, such as Purple Mash, Doodle Maths and Mathletics will be utilised.

Children use and apply mathematics in a variety of ways when solving problems using ICT. Children have the opportunity to produce graphs and tables when explaining results. Children use simulation to identify patterns and look at sequencing. On a weekly basis, every class has the opportunity to use a web-based programme called 'Doodle Maths' to deepen their understanding of mathematical skills. This allows teachers to assess pupil understanding and the app is catered for each individual, setting work to their ability. Calculators are used in Upper Key Stage 2 when necessary to support pupils' conceptual understanding and to enable them to explore more challenging problems.

Children use ICT in Maths when appropriate:

- Doodle Maths and Times Table apps are used weekly by Reception- Y6 to support them in Mathematics, adopting a 'little and often' approach.
- Children are encouraged to use Doodle Maths at home, where possible.
- Timestable Rockstars to be used in Key Stage 2. Children to be encouraged to use this at home (November 2022).
- Mathematical websites are available for children to use on notebooks, iPads and computers.
- Visualisers are used in classrooms to demonstrate concepts and enhance learning.

Cross-curricular links

Literacy

Mathematics contributes significantly to the teaching of Literacy in our school by actively promoting the skills of reading, writing, speaking and listening. In order to develop mathematical language and to present proof within a lesson, pupils must engage with high-quality language and with varied vocabulary. Through the use of problem solving we encourage children to read and interpret mathematical problems in order to identify the mathematical skills that are needed. Children have the opportunity to present their work on

visualisers on a daily basis and are encouraged to speak about the story around their calculations, offering arguments and proof. This enables teachers to question and discuss in order to address any misconceptions. Younger children enjoy stories and rhyme that rely on counting and sequencing whilst older children read mathematical vocabulary, graphs and charts when using non-fiction texts. The whole school approach to Talk 4 Writing is used, where relevant, to support with Mathematical concepts. Washing lines are used for Mathematics and Literacy in classrooms, acting as visual prompts to support pupil learning.

Science

Through our links with STEM (Science Technology Engineering and Maths) children are able to see explicit links between their mathematical skills and their scientific thinking. Children have opportunities to apply data handling and measuring skills when carrying out scientific investigations. Whole class discussion of data 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. STEM work allows pupils to see the importance of mathematics and science in real-life contexts.

British Values

At New York Primary School we support and adhere to the latest guidance from the DfE which requires schools to actively promote fundamental British values and to ensure that pupils are encouraged to regard people of all faiths, races and cultures with respect and tolerance.

Safeguarding

This Maths policy is part of a flexible and relevant curriculum that engages pupils' interest and promotes safeguarding: the curriculum incorporates: teaching pupils how to star safe, how to protect themselves from physical harm and how to take responsibility for their own and other's safety.

Equal opportunities

At New York Primary School we are committed to promoting the principles and practices of equality and justice throughout school. We ensure that all children receive their entitlement to a broad, balanced and relevant curriculum, which is differentiated, to meet identified individual needs through flexible and varied provision. We promote harmony, prepare pupils for living in a diverse and increasingly independent society and aim to prevent and address all forms of discrimination in compliance with Equal Opportunities legislation and meet Ofsted criteria.

Monitoring and evaluation

The Maths policy of New York Primary School will be reviewed annually to ensure all aspects of the policy meet the latest statutory regulations and that it is sufficiently up-to-date to provide the best possible Maths teaching for pupils. The actions set out within the policy are realistic, achievable and manageable to enable staff to deliver it effectively in relation to other duties and responsibilities.