



The Globe Primary Academy

Maths Policy

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Review: July 2023

Background and Aims

At The Globe we recognise the vital need for children to be confident, enquiring mathematicians who develop an enjoyment of the subject and a desire to develop their skills post primary school. Teaching not only seeks to develop fluency and flexibility in children's approaches to using and manipulating number, but also develop higher order thinking and reasoning skills through and deep and challenging problem solving.

As a school we have the following aims for the learning of mathematics for all children:

- Developing fluency and flexibility in all areas of mathematics, making connections between the different content that has been studied.
- Become intuitive, thoughtful and articulate problem solvers.
- Improve communication skills by placing a high emphasis on reasoning.
- Develop enthusiastic, inquisitive and positive attitudes towards the subject, which result in a deep and lasting interest.

Schemes of Learning and Mastery

Since October 2016 The Globe has adopted the White Rose schemes of learning from Reception to Year 6. This allows teachers to teach key concepts over longer periods of time, with the aim of embedding fundamental understanding before moving on to the next unit of work. In order for pupils to be able to master the taught content, multiple opportunities for reasoning, problem solving and intelligent practice are provided for children to engage with. Development of higher level thinking skills, through deeper, open ended problems will enable rapid-grasping pupils to develop mastery with greater depth.

Weekly Mathematics Structure

Mathematics is taught in five sessions per week, with each session lasting between forty-five minutes to one hour, depending on the nature of the content taught. Daily content is based on the small steps that are suggested by the White Rose Maths scheme of learning

<https://resources.whiterosemaths.com/resources/> but each class teacher is expected to adapt and develop these in order to ensure that the content meets the needs of class and in particular, the individual child. Lessons throughout the week will typically comprise the continued consolidation and the development of skills linked to fluency and then extend these skills through further reasoning

and problem-solving activities. These are designed to engage, challenge and extend all children regardless of their individual abilities.

In addition to the daily maths lessons which are based on WRM blocks of learning (broken down into the daily small steps) there is an additional 10-15 daily focus on number knowledge and fluency. This can take place at the beginning of a daily maths lesson but can also be taught as a separate 'number knowledge' focused session depending on the year group. In general this will look as follows:

- Year 1/2 - Numbersense programme
<https://numbersensemaths.com/programme>
Year 3 - Numbersense programme - Autumn/Spring term focus
- <https://numbersensemaths.com/programme>
Times tables fluency and rapid recall - Summer term focus
- Year 4 - Times tables fluency and rapid recall focus including daily use of Times tables booklets, TT Rockstars and www.timestables.co.uk/
- Year 5 - Daily 'Fluent in 5' activities
- Year 6 - Daily 'Fluent in 5' activities - Autumn term focus
Daily 'Fast 10' activities - Spring/Summer term focus

In addition to this, as part of several lessons during the week, teachers choose a 'number of the week' and use this to further develop fluency skills which are appropriate to the age group of children that they are teaching, e.g. Y1/2 - how many different ways can they represent a 2-digit number; Y3/4 - can they identify a number 10 times larger/smaller or write it in Roman numerals; Y5/6 - can they identify all factor pairs of the number, what is it a multiple of....etc.

Planning and Teaching

Lesson planning is conducted by class teachers, under the monitoring of year group leaders and our maths lead (IH). Sequences of lessons should be flexible enough to respond to the needs of the children and annotations should indicate how the lessons have been altered to take this into account. Daily lessons are based on the White Rose Maths small steps and will use WRM resources (daily powerpoints/worksheets) as a starting point. However it is expected that within this framework, each individual teacher ensures that the individual needs of each child is taken into account. As well as providing appropriate tasks for particular SEND children, it is also expected that teachers will provide additional challenge for those 'rapid graspers' or children who are working at Greater Depth including the use of the following resources:

- I See Reasoning
- NCTEM Mastery
- 'Can you convince me?' cards
- Deepening Understanding website
<https://www.deepeningunderstanding.co.uk/>
- Challenges for more able pupils booklets

Teachers no longer create a separate weekly planning document for maths. All evidence of planning including resources used and differentiation is included in the daily teaching powerpoints. In addition to this, teachers complete a separate overview document for each topic/block of learning which includes evidence of adult deployment and those children who are being targeted for adult support and intervention when appropriate. At the end of each lesson, there is an additional page on the powerpoint that will allow teachers to make quick and precise evaluations of each lesson, including notes to support follow up lessons (particularly supportive for classes with more than one teacher/next day PPA cover) and future planning.

The overall weekly structure of lessons will vary but all teachers plan and provide lessons that focus on developing the children's knowledge and understanding through the three key areas of fluency, reasoning and problem solving. Whilst this process will vary depending on the ability of the child (for example a less able child may need more lesson time dedicated to developing fluency in a particular area) all children will be given the opportunity throughout a topic to develop higher order thinking and reasoning skills. A daily mathematics lesson will include elements of all three of these key areas, regardless of age or ability of the groups of children being taught. Lessons are planned and delivered at a level that is appropriate for the particular year group based on the changes introduced in the 2014 National Curriculum. Teachers approach the delivery of mathematics with the same high expectations for all children and whilst differentiation (for example through the use of concrete resources, visual aids, scaffolded tasks and deployment of adults) allow pupils to make progress from different starting points, the aim for the final attainment of the large majority of pupils is the same - a key concept in the teaching of maths mastery.

In each lesson the teacher will explicitly share the learning intention with the children and (if appropriate) give them the opportunity to identify what success will look like in order to achieve their learning intention. This success criteria ('Steps to Success') will often be recorded with the children, giving them

ownership and enabling them to refer back to them throughout the lesson when necessary. At the end of the lesson, the teacher will ensure that all children have the opportunity to self-assess against their learning intention (see feedback, marking and assessment). If after the lesson, the teacher feels that a significant group of children have been unsuccessful in achieving their learning intention, they will follow this up in the next lesson by setting aside a short amount of time to address conceptual misunderstandings or common procedural errors. This can be delivered to the whole class directly by the class teacher or be targeted at a smaller group via a teaching assistant.

Delivery of mathematics content takes into account the concrete-pictorial-abstract sequence of understanding mathematical concepts. Resources should be available to support pupils' understanding wherever appropriate. Whilst resources are used more heavily at the early stages of child's mathematical development to help them progress from concrete to more abstract modes of thinking, it is important that they continue to be used throughout the child's learning journey whilst at the school and by children of all mathematical abilities.

Working walls are used in every classroom to support children's learning, enhance their mathematical understanding and help develop pupils as independent learners. They are consistently updated to link to the current topic that children are learning about and develop over a 2-3 week block of lessons. Working walls are used throughout the teaching cycle to build up a resource bank of visual representations of number/mathematical concepts and key instant recall facts e.g. number bonds, times tables, fraction/decimal/percentage equivalences. They also include key topic-related vocabulary and STEM sentences (to support both verbal and written reasoning skills) and examples of teacher modelling when appropriate.

Feedback, marking and Assessment

At The Globe we believe that the most purposeful and impactful feedback is given during the lesson itself. A significant proportion of this can be given throughout the lesson verbally, directly to children (individually, as a smaller group or as a whole class) when appropriate.

A short amount of time is planned into every lesson to allow children to mark their own work. This occurs when appropriate, throughout the lesson and not necessary just at the end. We believe that self-marking is an effective self-assessment tool, allowing children to identify whether or not they have been

successful against the learning intention and relevant 'Steps to success' up to that particular point in the lesson. If children feel that they have not been successful, they are encouraged to identify themselves to the teacher/teacher assistant and seek additional adult support during the rest of the lesson.

At the end of each lesson, children will self-assess against the lesson's learning intention using the agreed target/one tick/two tick symbols. Once the lesson has finished, teachers are responsible for identifying errors that the children may not have already identified during their own marking. Teachers are no longer expected to set daily 'growth' activities but they should still encourage children to revisit their prior learning when there is a particular conceptual or procedural error that they have identified in a number of children's work. These activities can take the form of a short consolidation session in the following days lesson before a new learning intention is introduced. They may also be revisited during smaller group work led by the class teacher or teacher assistant during the follow up lesson.

Attainment and progress data for mathematics is recorded half-termly on O-Track, the school's data tracking system. In order to have mastered a particular concept, pupils are required to show independent application through a range of problems. SAT tests are set for children to take at the end of year two and year six. When the school has the results of these the data is analysed by a combination of the maths lead, year six lead and SLT. Measures will be taken to address any issue that arise as a result.

Children in Years 1 to 6 are also required to complete a PUMA assessment on a termly basis. These results, along with ongoing teacher assessment are used to track children's progress and attainment. They are also a useful tool to support class teacher's in highlighting particular areas of weakness in their pupils understanding of certain mathematical concepts. Teachers are responsible to ensure that these areas are readdressed and revisited as part of their planning for their individual class and across their year group as a whole.

Presentation

Children must be set high expectations for the presentation of their work and be taught to have pride in their learning. Every piece of work should have a date (in the format day.month.year.) and title which are underlined using a ruler. Learning intentions will be handwritten by the significant majority of children, however on occasions they may be typed as a time saving device for some individuals. A clear vertical margin is also carefully ruled on the left-hand side

of each page in their maths book before any written work is attempted. One digit per square should be used and no digit reversal should go uncorrected. Children should not rub out any errors in their maths books; rather they should put a clear straight line through work that they wish to change or restart. On the whole, consistent problems with presentation should be addressed to children verbally but written reminders can be given in books if appropriate.

Evaluation and Monitoring

High quality mathematics will be maintained through the following monitoring procedures:

- Lesson observations
- Book looks
- Planning monitoring
- Learning walks
- Data analysis

Teachers will be given timely feedback if any actions are required to maintain consistency and quality of learning. Staff development meetings will also be used to disseminate up to date developments in best practice mathematics teaching. The mathematics lead will look for appropriate CPD to help develop staff confidence and competence in the teaching of mathematics.

Home learning/Parental engagement

Children are given maths tasks via each year groups Google classroom www.classroom.google.com/ as part of home learning every week. Tasks provided are linked to a curriculum area that has recently been covered as part of children's daily maths lessons. This allows children to consolidate and practice a key skill that they have learned in class and also helps engage parents/carers in their child's learning journey.

As of November 2019, the school has also introduced TT Rockstars (from year 3 to 6) and Numbots (from Reception to year 2). Children who have access to a computer, laptop or mobile device at home are encouraged to play these games that have been personalised to their abilities (after an initial 5 minute assessment activity) to help further develop their fluency skills in relation to number knowledge (R-Y2) and times tables/related division facts (Y3-6).

The importance of fluency in the recall of times tables is also being addressed through implementation of a whole school teaching times tables programme. This is being closely directed by the Maths lead (IH) alongside class teachers -

particularly in Year 3 and 4 - with a particular focus being the introduction of the MTC (Multiplication Tables Check) for children at the end of Year 4, beginning in June 2022.

Equal Opportunities

Mathematics at The Globe is taught so that all pupils can succeed.

- Our expectations do not limit pupil achievement
- Targets are set with each individual pupil's next steps at the forefront
- Children are challenged and extended to increase their need for independent thinking
- Interventions take into account the level of understanding of the child and help them to develop appropriately

In accordance with curriculum guidelines, pupils who grasp content rapidly are not accelerated through curriculum content. These pupils are given the opportunity to learn and develop higher order thinking skills at pace, through a varied diet of more complex reasoning problems through which to apply and articulate their mathematical understanding and mastery of the subject.

Updated by:

Iain Henderson (Maths lead) July 2021