Godmanchester Bridge Academy

# Maths Policy - December 2017

## Together We
## Inspire Enjoy Achieve

Godmanchester Community Education Trust

# Mathematics Policy

## For

## Godmanchester Bridge Academy

## 1. Introduction

This policy outlines the teaching, organisation and management of the mathematics taught and learnt at Godmanchester Bridge Academy. The school's policy for mathematics is based on The New Mathematics curriculum 2014. The implementation of this policy is the responsibility of all the teaching staff.

## 2. Mathematics-Purpose of Study

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 in most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, and a sense of enjoyment and curiosity about the subject.

## 3. Aims

The National Curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems

- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

# 4. SCHOOL CURRICULUM – PROGRAMME OF STUDY

## Foundation Stage

The programme of study for the Foundation stage is set out in the EYFS Framework. Mathematics involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shape, spaces and measures.

## Key Stage 1 and 2

The Programmes of study for mathematics are set out year by year for Key Stages 1 and 2 in the new National Curriculum (2014). The programmes of study are organised in a distinct sequence and structured into separate domains. Pupils should make connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

## Key Stage 1

The principal focus of mathematics teaching in Key Stage 1 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 (e.g. 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. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

## Lower Key Stage 2 – Years 3-4

The principal focus of mathematics teaching in lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of Year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

## Upper Key Stage 2 – Years 5-6

The principal focus of mathematics teaching in upper Key Stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of Year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

## 5. Cross Curricular

Throughout the whole curriculum, opportunities to extend and promote Mathematics should be sought. Nevertheless the prime focus should be on ensuring *mathematical progress* delivered discretely or otherwise.

## 6. Teaching and Learning

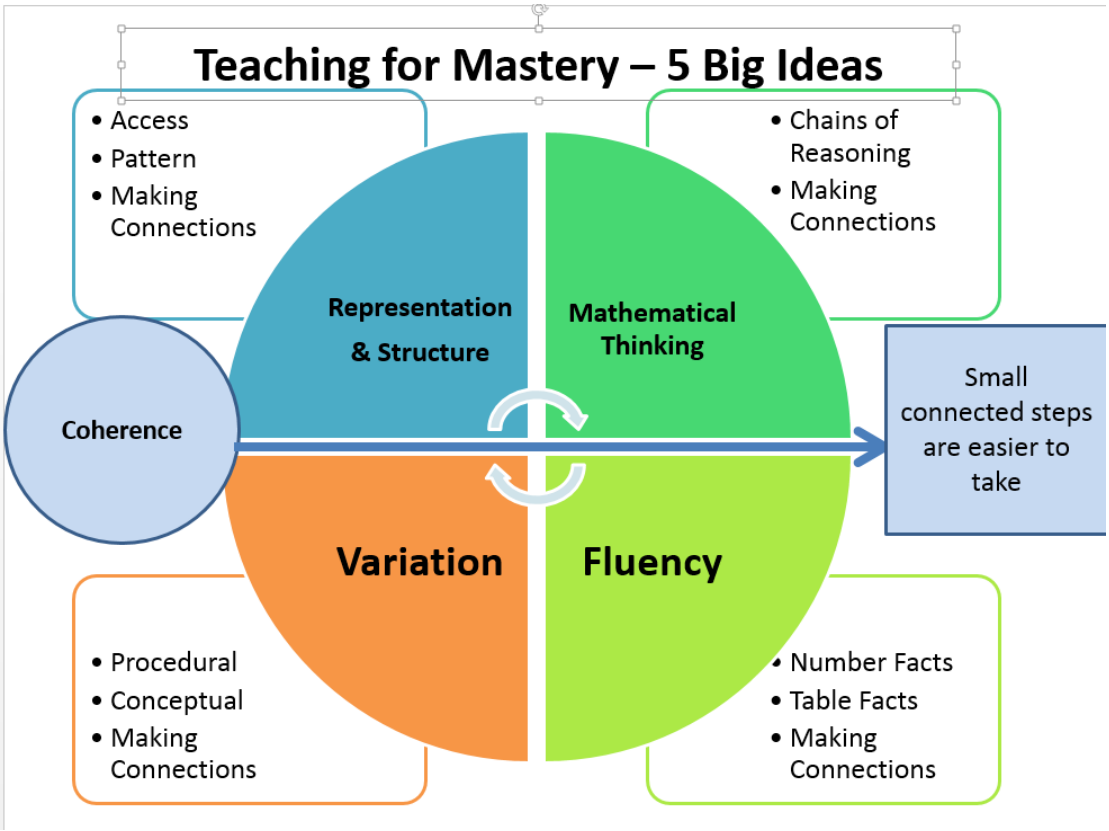
At Godmanchester Bridge Academy we follow the Mastery approach to mathematics teaching.

### We focus on the principles of:

- **Deep** and sustainable learning – **for all**
- The ability to build on something that has already been sufficiently mastered
- The ability to reason about a concept and make connections
- Conceptual and procedural fluency

**A mastery approach**: a set of principles and beliefs. This includes a belief that all pupils are capable of understanding and doing mathematics, given sufficient time. Pupils are neither 'born with the maths gene' nor 'just no good at maths. With good teaching, appropriate resources, effort and a 'can do' attitude all children can achieve in and enjoy mathematics.

**NCETM**




The curriculum is delivered by class teachers. Planning is based upon the new National Curriculum (2014). Programmes of Study should inform medium term plans and subsequently weekly planning. Class teachers are responsible for the relevant provision of their own classes and individually develop weekly plans which give details of learning objectives and appropriate differentiated activities. Although planned in advance, they are adjusted on a daily basis to better suit the arising needs of a class and individual pupils.

All plans are electronically stored on the shared area of the school's network in order to allow ready access by all members of staff involved in the planning and/or teaching of mathematics.

## How we cater for children who are more able

Mathematics will be taught with their own class and stretched through greater depth tasks. When working with the whole class, teachers will direct questions towards the more able (at their ability level) to maintain their involvement.

## How we cater for pupils with particular needs

The daily mastery approach mathematics lesson is appropriate for all pupils. Teachers will involve all pupils.

IWBs and ICT are important resources for many reasons, one of which is supporting children with visual needs.

## Pupils with special educational needs

Within the daily mathematics lesson, teachers aim to provide activities to support children who find mathematics difficult. Children with SEN are taught within the daily mathematics lesson and are encouraged to take part when and where possible.

When educational support staff are available to support groups or individual children, they work collaboratively with the class teacher. The support teacher feeds back to the class teacher when appropriate to inform evaluations, assessment and future planning.

## Inclusion and equal opportunities

All children are provided with equal access to the mathematics curriculum. We aim to provide suitable learning opportunities regardless of gender, ethnicity or home background.

## Pupil's records of their work

There are occasions when it is not necessary to record mathematics in a permanent form but there are also occasions when it is both quick and convenient to carry out written calculations. It is also important to record aspects of mathematical investigations. Children are taught a variety of methods for recording their work and they are encouraged and helped to use the most appropriate and convenient method of recording.

Children are encouraged to use mental strategies before resorting to a written algorithm.

Recording work may involve children making rough jottings first followed by recording actual answers for the teacher's attention. All children are encouraged to work tidily and neatly

when recording their actual answers but jottings may take any form and are important evidence for the teacher.

## 7. Marking and Presentation

Teachers are expected to adhere to the schools marking policy when marking books and presentation policy when guiding children as to how to present their work.

## 8. Homework

The mathematics lessons will provide opportunities for children to practise and consolidate their skills and knowledge; to develop and extend their techniques and strategies, and to prepare for their future learning. These may be extended through homework which may include Mathletics or written tasks. These activities will be short and focussed and will be referred to and valued in future lessons.

Children will have access to the whole Mathletics website including live Mathletics once they have completed their set homework.

## 9. Resources

The majority of mathematical resources are located within the classrooms.

## 10. Information and Communication Technology

ICT will be used in various ways to support teaching and motivate children's learning. ICT will involve PCs, laptops, i-Pads, calculators and audio-visual aids. They will however only be used in the daily mathematics lesson when it is the most efficient and effective way of meeting the lesson objective. Calculators should not be used as a substitute for good written and mental arithmetic. They should therefore only be introduced near the end of Key Stage 2 to support pupils' conceptual understanding and exploration of more complex number problems, if written and mental arithmetic are secure. Teachers should use their judgement about when ICT tools should be used.

## 11. Assessment

Assessment will take place at three connected levels: short-term, medium-term and long-term. These assessments will be used to inform teaching in a continuous cycle of planning, teaching and assessment.

Short-term assessment will be an informal part of every lesson. The teacher will share the objectives for the lesson with the children and make sure they are clear what is being expected of them to successfully achieve the objective. This is a necessary part of assessment for learning and helps the children take ownership for their own learning. The short term assessment will also involve the teacher checking the children's understanding at the end of the session to inform future planning and lessons.

Medium-term assessment will take place three times a year according to the Assessment Schedule. The outcomes of the assessments are used to inform the updating of Target Tracker every term and to set targets for the child. Accurate information will then be reported to parents and the child's next teacher.

Long-term assessment will take place at the end of the each Key Stage to assess and review pupils' progress and attainment. These will be made through compulsory National Curriculum mathematics tests for pupils in year 2 and 6. Children in the Foundation Stage are assessed in accordance with the EYFS curriculum.

## 2. Management of Mathematics

## Role of the co-ordinator

- Teach demonstration lessons;
- Ensure teachers are familiar with the New Curriculum for Mathematics and help them to plan mastery approach lessons;
- Lead by example in the way they teach in their own classroom;
- Prepare, organise and lead INSET;
- Work co-operatively with the SENCO;
- Observe colleagues from time to time with a view to identifying the support they need;

- Attend INSET;
- Inform parents;
- Discuss regularly with the senior leadership team the progress of implementing the Strategy in the school.

## Role of the Head of School

- Lead, manage and monitor the implementation of the New Curriculum for Mathematics, including monitoring teaching plans and the quality of teaching in the classrooms;
- Keep the governing body informed about the progress of the framework;
- Ensure that mathematics remains a high profile in the school's development work;
- Deploy support staff to maximise support for the New Curriculum for Mathematics.

## Role of the class teacher

- Be responsible for the teaching of mathematics as set out in the policy
- Provide planning and reviews for the head teacher and mathematics leader to have access to
- Provide samples of mathematics work to the mathematics leader
- Assess children's work regularly and use to inform future planning
- Mark work regularly providing guidance to pupils on how to improve.

## 13. Conclusion

This policy should be read in conjunction with the following school policies:

- Teaching and Learning Policy
- Assessment Policy
- Marking and Feedback Policy
- SEND Policy
- IT Policy
- Equality Policy
- Homework Policy

| Policy Details | Date | Signature/Name |
|---|---|---|
| Policy approved by Senior Management: | | |
| Policy approved by Senior Governor | | |
| Date of next review: **December 2019** | | |

**Policy Section: Section 1A – Curriculum Policies (Pupils)**

Policy Reference: GBA 1A/ 02 MA