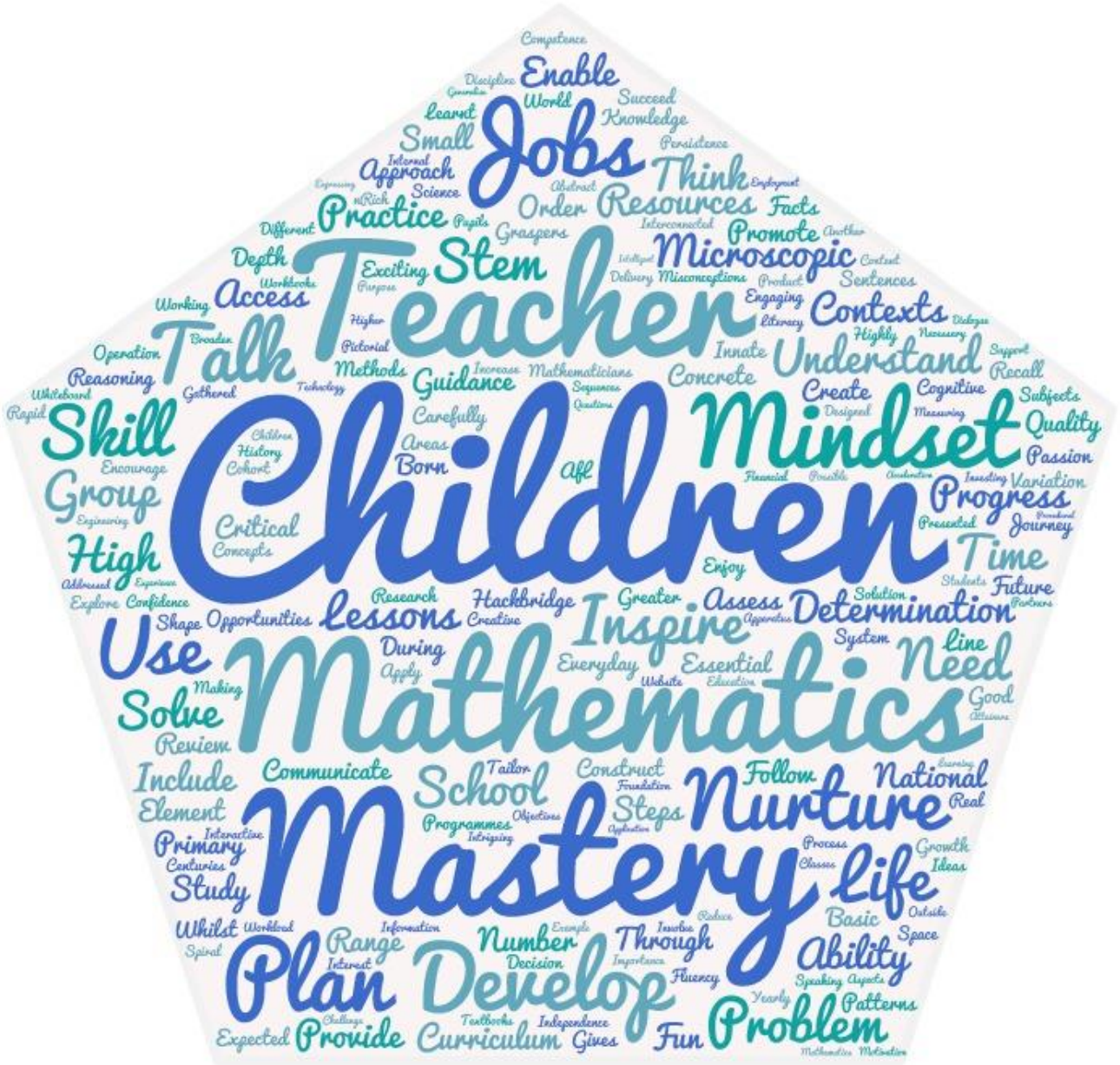
Hackbridge Primary School

Mathematics Policy

January 2018 – v1



Introduction
Mastery of mathematics is the aim for our children at Hackbridge Primary School. We are on a journey towards a **mastery approach**. We are part of a Teacher Research Group (TRG) for Mastery for Maths and a TRG for greater depth in Mathematics.

We believe that no one is 'good' or 'bad' at maths[i]. We have developed a growth mindset at our school[ii]. Like speaking, we are all born with an innate ability to enjoy and succeed at mathematics. We want to:

- **Inspire** children to develop a passion for mathematics.
- **Nurture** future mathematicians who will take up jobs in STEM subjects.
- Provide opportunities to develop problem-solving skills useful for maths and across the curriculum.

We believe Mathematics should be exciting, engaging and fun.

We want children to:

- Develop **determination** when working through problems.
- Develop both independence and co-operation.
- Think critically and communicate their understanding.
- Have opportunities to apply mathematical skills in different contexts across the curriculum.
- Develop their and understanding of mathematical concepts and enable them to practice and hone skills and methods.
- Develop mathematical skills and knowledge and quick recall of basic facts in line with the National Curriculum Mathematics Programmes of Study.
- Promote confidence and competence with numbers and the number system.
- Develop the ability to think mathematically, solve problems through decision making and reasoning in a range of contexts.
- Develop a practical understanding of the ways in which information was gathered and presented.
- Explore features of shape and space and develop measuring skills in a range of contexts.
- Help children to understand the importance of mathematics in everyday life and promote mathematical thinking as a life skill.

'Mathematics is a creative and highly interconnected 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...' (National Curriculum in England: mathematics programmes of study, 2013)

CPA Approach

- Teachers move children through the three areas of concrete, pictorial and abstract mathematics.
- Each year group has access to *Maths no Problem* textbooks and workbooks as guidance.
- All children have access to concrete apparatus.

Microscopic progression

- Teachers carefully construct sequences of lessons using microscopic progression.
- National Curriculum objectives are broken down into the small steps, which children need in order to be able to progress.

- We use White Rose Maths small steps as guidance to support teachers in planning for microscopic progression.

Planning
- The expectation for teachers is to create no more than one A4 page of planning per week, following the Workload Review[iii] and our own internal review.
- Teachers are expected to spend time planning lessons and investing time in resources, which includes interactive whiteboard slides[iv].
- *Planning is a process not a product. It has one purpose: to enable high quality delivery which meets the needs of all students*[v].
- We use White Rose hub yearly overview as guidance and tailor it for our cohort's needs.
- We do not follow a spiral curriculum. All children will progress at the same rate. There is no rapid acceleration onto new content.
- Planning where possible should involve real life contexts so that children understand mathematics has a practical application and also to increase motivation and interest.
- Mathematics lessons will be designed to include elements of fluency, reasoning and problem solving.

Assessment and misconceptions
- Misconceptions are addressed during maths lessons or outside during another time in the day. Teachers use AfL to assess children's understanding.

High prior attainers/quick graspers/more able pupils
- Quick graspers will not be moved onto a higher year group's curriculum.
- Teachers use resources, for example the nrich website, to broaden the maths that children experience and create more challenge.

Communication
- Communication, including the use of talk partners, is an essential element of our mathematics lessons.
- Children are encouraged to discuss their mathematics. Resources from the Association of Teachers (ATM) of Mathematics are used to encourage dialogue[vi].

Mixed ability
- All mathematics learning at our school will be in mixed ability classes.

Variation
- Teachers plan for cognitive and procedural variation in order to reduce the cognitive load for children and help children to spot patterns.

Intelligent practice
- Questions are carefully constructed to help children spot the key aspects of the mathematics. Children need to see the patterns and generalise about the mathematics[vii].

STEM sentences
- Teachers form STEM sentences to assist children in expressing their ideas.

Resources
- All staff have access to mathematics resources saved on R:\Maths\Resources.

[i] The Elephant in the Classroom; Helping Children learn and Love Maths. Jo Boaler. Souvenir Press.
[ii] Growth Mindset Pocketbook. Barry Hymer & Mike Gershon. Teachers' pocketbooks.
[iii] Eliminating unnecessary workload around planning and teaching resources. Report of the Independent Teacher Workload Review Group. March 2016.
[iv] Teachers Lean Lesson Planning. Peps Mccrea. Teacerly.co
[v] Mark. Plan. Teach. Mark. Plan. Teach.: Save time. Reduce workload. Impact learning. Ross Morrison McGill. Bloomsbury. 2017.
[vi] Talking Maths - tasks to stimulate rich mathematical talk in classrooms. Association of Teachers of Mathematics. www.atm.org.uk
[vii] Teaching Mathematics to Able Children. Valsa Koshy. David Fulton Publishers.