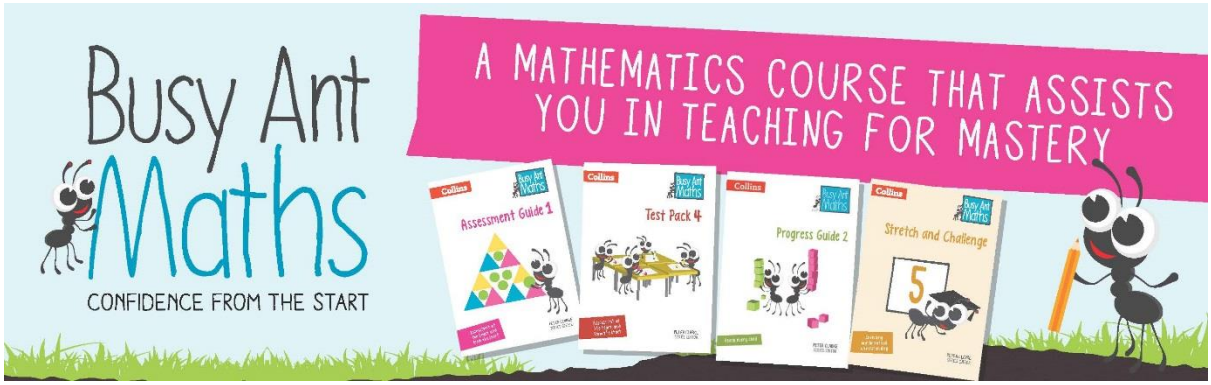


The Busy Ant Maths Guide to Achieving Mastery

Planning, teaching and assessing for mastery in mathematics

Since the introduction of the 2014 primary national curriculum, the term 'teaching for mastery' has been used to describe the most successful approaches to the teaching of primary mathematics. For some teachers, the characteristics of mastery teaching will be new; but for others some, or indeed many, of the features will be strategies that they are already using. What is new however is that we now have an umbrella term which enables everyone involved in the teaching of mathematics to better understand and implement the principles, beliefs and features that characterise this approach.

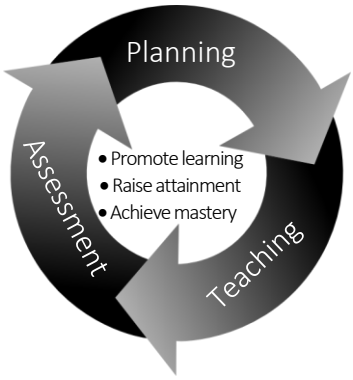
PRINCIPLES & BELIEFS

The most powerful strategy in adopting a mastery approach to mathematics is having a belief system that encompasses the following set of principles:

- A **'can do' attitude** where all pupils can achieve in, and enjoy, mathematics.
- Having **high, and ambitious, expectations** for every pupil.
- A philosophy of **equal opportunity** that means that all pupils have full access to the same curriculum content.
- **Whole-class interactive teaching** ensures that all pupils work together on the same lesson content at the same time so that gaps in attainment are narrowed whilst the attainment of all is raised. This also ensures that all can master concepts before moving to the next part of the curriculum sequence, allowing no pupil to be left behind.

FEATURES

A useful way to consider the various features that characterise a mastery approach to the teaching of mathematics is to look at each of the characteristics in relation to its place in the teaching and learning cycle.



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Planning

- A detailed, structured curriculum is mapped out in small carefully sequenced steps, ensuring continuity and progression.

- Fundamental skills and knowledge are secured first and must be mastered before pupils move to the next stage.

- The vast majority of pupils progress through the same curriculum content at the same pace, allowing them all full access to the curriculum by focusing on developing deep understanding and secure fluency with facts and procedures.

- Fluency comes from deep knowledge and practice. Recall of addition and subtraction number facts and multiplication tables are fundamental in ensuring pupils are able to use known facts to derive and work out unknown facts, and to use effective, efficient and appropriate written methods.

Teaching

- Lessons are carefully crafted in order to foster deep conceptual and procedural knowledge.

- Whole class discussions and precise questioning during lessons ensures that pupils develop fluent technical proficiency and think deeply about the underpinning mathematical concepts.

- Pupils' difficulties and misconceptions are immediately identified and addressed through teachers' use of specific questioning, formative assessment and rapid intervention, in order to ensure that all pupils keep up and move forward as a class.

- A variety of concrete and pictorial representations are used to introduce and explore a concept effectively.

- Pupils are encouraged to make connections in mathematics in order to deepen their knowledge of concepts and procedures and to ensure what is learnt is sustained over time.

- 'Intelligent Practice' plays a central role. Carefully constructed exercises and problems provide appropriate variation that enables all pupils to develop conceptual understanding alongside procedural fluency.

- Differentiation does not restrict the mathematics that 'lower attainers' experience, whilst encouraging 'higher attainers' to 'accelerate' through extension tasks. Differentiation is achieved by providing rapid support and intervention to address each individual pupil's needs, not in topics taught.

Peter Clarke, Busy Ant Maths Series Editor - November 2016

- Pupils apply their understanding of mathematical concepts and procedures to reason and to solve different types of problems.

Assessment

- The most effective forms of ongoing, formative assessment arise from well-structured activities involving interaction and dialogue between teacher and pupils, and between pupils themselves.

- Quick feedback is given to pupils and effective intervention to support all pupils to keep pace with the rest of the class.

- Teachers assess conceptual and procedural knowledge, enabling pupils' to achieve confidence and competence – 'mastery' – in mathematics.

For a more detailed explanation of how Busy Ant Maths supports mastery approaches to mathematics and the 2014 primary national curriculum for mathematics, refer to the document ***Busy Ant Maths and a 'mastery' approach to the teaching of mathematics***.

Peter Clarke, Busy Ant Maths Series Editor - November 2016