



Problem solving and Reasoning

Busy Ant Maths provides opportunities for pupils to reason mathematically and to solve increasingly complex problems. Problem solving, communicating and reasoning are at the heart of every Busy Ant Maths lesson.

Problem solving, and especially encouraging pupils to communicate their reasoning, is a crucial element of the 'Teach' stage of the Busy Ant Maths teaching and learning sequence.

'Teach' is followed by pupil practice and consolidation – referred to as 'Individualised Learning'. This provides an opportunity for all pupils to focus on their newly acquired knowledge. In particular, Challenge 3 in the Pupil Books and the Enrichment activities in the Progress Guide, provide opportunities for pupils to use and apply their newly acquired mathematical knowledge to problem solve and investigate different types of problems. The accompanying Busy Ant Maths 'Stretch and Challenge' books, also provide a problem-solving, cross-curricular programme designed to broaden and deepen children's mathematical understanding.

One of the key principles behind Busy Ant Maths is the concrete-pictorial-abstract (CPA) approach to the teaching and learning of mathematics. This method advocates that there are three steps, or representations, necessary for pupils to develop understanding of a concept. The CPA approach fosters a deeper understanding of mathematics so that pupils gain greater conceptual knowledge rather than mere procedural knowledge. Different representations and models and images are used throughout the entire Busy Ant Maths programme to support understanding, provide conceptual variation and to encourage pupils' reasoning.

In Busy Ant Maths there is no differentiation in content taught. However, the questioning and scaffolding individual pupils receive in class as they work through problems will differ. 'Lower attainers' focus on developing deep understanding and securing fluency with facts and procedures, while 'higher attainers' are challenged through more demanding problems that deepen their knowledge of the same content.

Within the 'Progress Guide', support sheets are provided for specific lessons for those pupils who need extra support in attaining the competence necessary to master the lesson objective(s) and would either benefit from practising and consolidating the prerequisites for learning or undertaking work at a simpler level than provided in the pupil book. Enrichment sheets within the 'Progress Guide' are also provided for pupils who require more challenging work. These resources have been carefully written to provide a greater depth of understanding and often involve pupils using and applying their mathematical knowledge to solve problems and reason mathematically.

Look out for new Busy Ant Maths Problem Solving and Reasoning books coming soon!