



# AN EEF SCHOOL CASE STUDY: MINIMISING MISCONCEPTIONS IN MATHEMATICS

*Blessed Edward Bamber Catholic Multi Academy Trust, Blackpool*



## School context:



BEBCMAT is a family of three schools who have worked together to ensure consistency and cohesion in maths teaching from Early Years to KS5. Up to 40% of the intake are eligible for the Pupil Premium. Blackpool is currently home to eight of the ten most deprived neighbourhoods in England (MHCLG English Indices of Deprivation, 2019).

## 1 What problem were you looking to solve?



Historically, outcomes in mathematics had been below national averages, so a focus on improving mathematics across a 5-year period was identified as a Trust priority.

The EEF audit tool linked to the Key Stage 2 and 3 guidance report was used by teachers and maths leads to identify areas for development. This identified specific areas around the use of manipulatives and the teaching of problem solving, but also highlighted a need for more collaboration and discussion across our teaching teams.

One area in particular which it was felt would benefit from this is the planning of units of work and the collective understanding of misconceptions relating to each unit.

## 2 What were the anticipated barriers/challenges?



Finding meeting time in order to discuss schemes of learning was one anticipated barrier to our approach, but a restructuring of CPD time ensured that two hours per fortnight of time for discussion of teaching and learning of mathematics was ringfenced.

A common planning format was agreed upon to ensure a consistency of approach, and this sat alongside conversations about renewed approaches to assessment.

As it was felt that the approach required time to be built in to lessons for revisiting and reteaching, a 'less is more' approach to the curriculum was taken, with fewer units of work and slimmed down content to allow time for depth of understanding to be developed.

## 3 What did you do?



Regular meetings take place in which teachers consider upcoming learning in mathematics and work collaboratively on ensuring classroom practice is as effective as possible.

A large part of this involves considering likely misconceptions that students may bring with them, and ways in which teachers can address these and minimise the chances of future misconceptions emerging.

A 'Teaching and Learning Planner' has been written for each unit of work, which forms the basis of these discussions, and is continually amended and developed based upon the collaborative planning meetings. This is particularly effective in supporting less experienced and non-specialist teachers.

## 4 How do you monitor/evaluate that the intervention is working?



There is now a much more consistent understanding of likely misconceptions, together with ways of addressing and minimising these, across all teachers of mathematics and these are written into schemes of learning via the new 'Teaching and Learning Planners'.

These planners are used regularly in meetings to talk about high-quality mathematics teaching, and to plan tasks and classroom discussions which are likely to minimise the chances of misconceptions forming.

The impact is particularly strong in the Trust Primary schools, with children in both schools now achieving outcomes well above national averages in mathematics.

## Additional:

### Suggested reading:

- *Improving Mathematics in Key Stages 2 and 3* [eef.li/maths-ks2-ks3/](https://eef.li/maths-ks2-ks3/)
- *EEF blog: 'Three practical approaches to help pupils learn from mathematical mistakes': Simon Cox considers practical approaches that can teachers use to translate the evidence into classroom-based methods for confronting pupil misconceptions head on* [educationendowmentfoundation.org.uk/news/](https://educationendowmentfoundation.org.uk/news/)

- *The EEF Guide to Supporting School Planning— A Tiered Approach to 2021* [eef.li/school-planning/](https://eef.li/school-planning/)



## Reflection questions



- How are you ensuring that teachers have the opportunity to develop their understanding of common misconceptions in mathematics and why they persist?
- How are you planning tasks which effectively address misconceptions based on assessment of your pupils' strengths and weaknesses?