Realistic Maths Education

This programme will train Key Stage 3 maths teachers to teach mathematical problem solving using an approach called Realistic Maths Education (RME). RME was developed in the Netherlands, where it is used by 80% of schools. In RME, teachers introduce maths using contexts that are familiar to pupils before introducing more formal and abstract contexts. It seeks to develop pupils’ intuitive understanding of mathematics before they learn more formal methods. Teachers support the informal-to-formal transition by teaching problem solving strategies and showing pupils how maths can be used to model problems in familiar contexts.

For example, a teacher might introduce the concept of fractions using the context of sharing a baguette. The teacher would encourage pupils to draw diagrams to show how they would share a baguette out between groups of people. This context is chosen as the rectangular shape of the baguette makes it easy to then show students that the abstract representation of the bar model could be a useful model for working with fractions. The teacher might then use other contexts, such as sharing a cup of water, to explore other aspects of sharing. Initially, the bar model is a simplified picture of the problem. However, as students consider questions such as whether it is possible to pour Can A of coconut milk (1/3 full) into Can B (3/4 full), the bar model becomes a tool for comparing different fractions.

This programme will use materials written by the Manchester Metropolitan University team of mathematics educators, based on their “Making Sense of Maths” textbooks. Class teachers will be provided with a scheme of work and teacher guides, PowerPoints, and worksheets to support 5 two-week blocks of RME in each of Year 7 (Autumn 2018/Spring 2019), and Year 8 (Autumn 2019/Spring 2020). The delivery team will provide materials and support for each lesson: teachers will have access to a dedicated website and materials will be available in electronic form.

The Manchester Metropolitan team will train teachers to deliver the programme. Teachers will attend eight training days over the two years, allowing time between sessions to work with the RME materials and to work together to evaluate their practice. School recruitment and training will focus on six areas, with the support of Maths Hubs.

Why are we funding it?

There have been several previous evaluations of Realistic Maths Education approaches that use different textbooks and materials. These evaluations suggested that RME had positive impacts on problem solving. However, these studies were small and used matched designs. An RCT has not been conducted yet.

Maths at Key Stage 3 is a priority area for the EEF and we recently published a guidance report on Maths in Key Stages 2 and 3. Problem solving is emphasized in the new maths curriculum, and is a topic on which schools are looking for guidance. RME’s focus on teaching multiple problem solving strategies is a good fit with the guidance report’s recommendation on problem solving.

How are we evaluating it?

The impact of RME on pupils’ maths will be evaluated using a randomised controlled trial involving 120 schools, and a process evaluation will examine the implementation of the programme. The evaluation will be carried out by a team from Sheffield Hallam University, led by Sean Demack.

When will the evaluation report be due?
The evaluation report will be published in Summer 2021.