

Making Sense of Mathematics

These materials provide a fresh, effective way of covering the mathematical curriculum which will engage learners and answer many of the “what’s the point” questions. These are the type of materials which I, and many others, have been waiting for. Used effectively, they will engage our students and produce those who understand the principles of mathematics and are able to apply them in life.

For a number of years the PISA tables have shown the UK near the bottom compared with other nations. A lot of attention has been given to the Far East and the government is even paying some teachers to go there to learn from them. However, there is a nation which consistently performs well, which is much nearer to the UK geographically and culturally, the Netherlands.

“These materials [developed specifically by Manchester Metropolitan University for the UK market] are a result of ten years of exploring Realistic Mathematics Education (RME), an approach to teaching used extensively in The Netherlands and increasingly in other countries as well. In international comparison tests, The Netherlands appears as a very high-achieving country mathematically.”

As a teacher who has taught in primary and further education (as well as having a sound understanding of what happens in many secondary schools) and as someone who has trained hundreds of FE maths teachers, I have no hesitation in recommending these materials for children and adults.

The main areas of the GCSE foundation curriculum (Key Stages 3 and 4) are covered through six topics, each being addressed by a teacher book, a student book and a workbook. These are all very attractive, clear and rooted in British culture. There are also CDs which contain all the picture and illustrations from the student book and the workbook which can be used as discussion starters and for finding whole class solutions.

The initial problems are at quite a challenging level e.g. how many times will Northern Ireland fit into England, Wales or Scotland? But this is used to encourage the learners to

develop their own solutions, my preferred method of working and one which is seen as very successful by a number of research projects.

Students are encouraged to develop procedures, but not at the expense of understanding. Lesson plans are provided, but the teaching of formulae before understanding has taken place is discouraged. For example, learners understand that area is space, not multiplying. Multiplication is simply an aid to finding area; it is not a solution.

There is a consistency of approach and the same techniques can be used for a wide variety of topics. For example, a double scale number line can be used for conversion, multiplication, division, ration, fractions, decimals and percentages. Producing realistic drawings to help find a solution is initially encouraged for many problems, but this is then adapted to a more helpful model.

I particularly liked the informal way algebra is introduced using fish and chips, the idea of balance to solve equations and the use of rectangular pizzas (rather than round ones) cut into equal sized pieces to solve fraction problems.

Research has shown that those who have used these materials have developed clear understanding and have produced consistently better results than control groups. Check out Using Realistic Mathematics Education in UK Classrooms <http://www.mei.org.uk/rme>.

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John has 25 years experience in mathematics education. Since 2011 he has been the chair of the National Association for Numeracy and Mathematics in Colleges (NANAMIC CIO). He is a teacher trainer at Selby College and is the GCSE Mathematics Enhancement Programme Maths Lead for Yorkshire and the Humber