

# The Shanghai Maths Project

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The inherent belief in the Chinese culture that 'mathematics gets you everywhere' and that 'anyone can become an excellent mathematician' underpins the high achievement of the subject in Shanghai. In fact, Shanghai's approach to maths is so strong that specialist maths teachers from China have been jetted in to the UK to share their methods in a few lucky maths hubs.

What has become known as 'the Shanghai approach' is characterised by whole-class teaching that builds a depth of understanding of the structure of mathematics, and that's supported by the use of high-quality textbooks.

Last year, schools minister Nick Gibb criticised UK education publishers for their textbook offer and urged them to emulate the high-quality textbooks of East Asia. Collins has now risen to that challenge with The Shanghai Maths Project Practice Books, which are based on a famous supplementary workbooks that have been used in Shanghai schools for the past quarter of a century. Collins worked with Professor Lianghuo Fan to translate and adapt the learning aid 'One Lesson, One Exercise' for the UK national curriculum.

The Shanghai Maths Project series will provide complete coverage of the curriculum, from the first year of primary to the last year of secondary. The books offer graded arithmetic exercises plus varied practice of key concepts and summative assessments for each year. For each area covered there is a learning objective, a collection of basic questions (with a challenge and extension question at the end) and an answers section. End-of-year tests are included too.

You might find these books aren't what you are used to. They are basic, minimalist, but they are of an exceptionally high-quality

and thoroughly researched. The maths isn't oversimplified, but you'll find plenty of visual representations to help children make sense of the ideas. Concepts are presented and developed in a logical approach, so the text is accessible, clear and concise, and offers good examples of how maths ideas can be used to solve problems.

In Shanghai, setting and streaming do not exist, as there is an expectation that all children will succeed. The methodical curriculum design means every child of the same age is on the same page of the same textbook at the same time, progressing at the same pace. The idea is that immediate feedback is given where misconceptions emerge and teachers are expected to reinforce that all pupils can aim high and achieve high. The maths you teach is very much a step-by-step approach using varied visual representations strongly connected to the abstract.

Each textbook is about intelligent practice, consolidation and maths as a science of thinking. This world-leading content has been tried, tested and refined over the last 24 years in China so that children can keep up and achieve. The books focus on drilling the two basics - basic knowledge and basic skills - and the idea that 'insight comes out of familiarity'.

This Shanghai mastery approach is all about repetition, going over and over similar territory. But the workbooks are based on variation theory, so a sequence of similar tasks is not considered rote-drilling, but instead promote deep learning. It is a methodical curriculum aimed at developing and embedding fluency, deep knowledge and understanding of underlying maths concepts. The approach is very thorough, and the step-



by-step style is detailed and logical.

Any criticisms? While the workbook should be educative for teachers, currently there is no teacher's handbook. One will be published next year, which is good as teachers need subject knowledge support as well as guidance on effective use. We need to know why tasks and exercises have been selected and the key points we should focus on. I'd also like to have seen explicit reference to mistakes, misconceptions and misunderstandings through exercises where pupils have to spot correct and incorrect procedures, reasoning or solutions.

## Verdict: Read on

**Workbooks like these could help turn around the UK's well-documented failures in basic numeracy, but they shouldn't be expected to wave a magic wand over children. They can work wonders, though, if you adopt the Shanghai approach. Collins should be congratulated for collaborating with the prestigious East China Normal University Press and Professor Fan as this shows an ambition to make a substantial contribution to raising mathematical performance in the UK. These best-selling practice books are available at £7.99, with Years 1 and 2 are currently available. Y3 is published in December this year with Y4 in Feb 2016, Y5 in April 2016 and Y6 in June 2016.**

