Help every child achieve mastery in maths!
Based on the successful Shanghai teaching approach these comprehensive resources include:

- Full Teacher Support
- New Practice Books
- High-quality textbooks
- Homework support
- Digital Resources

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Teaching for Mastery

What is mastery?

When we use the term ‘mastery’ in relation to The Shanghai Maths Project, we mean that we want all children to achieve a thorough understanding of the concepts, procedures and skills within primary mathematics.

What does mastery look like?

Thorough understanding is evident in what pupils do and say – a concept can be seen to have been mastered when a learner:

✓ is able to interpret and construct multiple representations of aspects of that concept
✓ can communicate relevant ideas and reason clearly about that concept using appropriate mathematical language
✓ can solve problems using the knowledge learned in familiar and new situations, collaboratively and independently

Within The Shanghai Maths Project, mastery is a goal, achievable through high-quality teaching and learning experiences that include opportunities to explore, articulate thinking, conjecture, practise, clarify, apply and integrate new understandings piece-by-piece. Learning is carefully structured throughout and across the programme, with Teacher’s Guides and Practice Books interwoven chapter by chapter, unit by unit, question by question providing complete coverage of the curriculum objectives for England.

For more information visit our mastery hub:
www.collins.co.uk/MathsMastery
Is a Mastery Approach to Teaching Maths Right for Me?

In our recent #PrimaryRocks online Twitter chat we found that a mastery approach to teaching is having a positive impact in schools across England. Here are some of the teachers’ comments:

“Children and teachers have rediscovered a love of maths”

“Mastery deepens understanding and gives all pupils the opportunity to develop their reasoning and problem solving skills”

“The aspirations of lower ability children have been raised whilst challenging the more able pupils to explain their answers”

“Conceptual understanding is at an all-time high”

Visit our blog: freedomtoteach.collins.co.uk for a full round up of the #PrimaryRocks chat

To find out more about a mastery approach to teaching visit our webpage: www.collins.co.uk/MathsMastery
The Shanghai Method of Teaching Maths

The Shanghai method of teaching is a whole-class approach that builds thorough understanding, develops higher-order thinking and is supported by the use of high-quality textbooks. The Shanghai pedagogy is based on:

1. A step-by-step approach that emphasises the development of basic knowledge, skills and thorough mastery of concepts
2. Whole-class teaching where teachers reinforce that every pupil can achieve a high standard in maths
3. Skilful questioning within lessons to promote conceptual understanding. Problems are used as a starting point for teaching
4. Identifying and rapidly acting on misconceptions which arise through same-day intervention
5. Understanding is promoted through a variety of representations

A Shanghai maths teaching framework usually follows this lesson structure:

1. Using problems as a starting point for teaching
2. Guiding students through exploratory activities
3. Establishing variation in practice
4. Summarising
5. Modifying based on teaching objectives

‘The Shanghai approach – with children taught as a whole class, building depth of understanding of the structure of mathematics, supported by the use of high-quality textbooks – is proving a hit in those schools in the country where it’s been tried. And standards of maths in these schools are rising rapidly.’ Nick Gibb, Minister of State for Schools

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The Shanghai Maths Project is a collaboration between Collins and East China Normal University Press Ltd. to adapt their bestselling maths programme *One Lesson, One Exercise* for England, using an expert team of authors and reviewers. This carefully crafted programme has been continually refined over the last 24 years, meaning that the materials have been tried and tested by teachers and children alike.

Meet the experts behind The Shanghai Maths Project

**Professor Lianghuo Fan**
Practice Books Series Editor

“The series will help students lay strong foundations, nurture deep learning and develop problem solving skills in mathematics.” Professor Lianghuo Fan

Professor Lianghuo Fan is a Personal Chair in Education at Southampton Education School, University of Southampton, where he is also the Head of Mathematics and Science Education Research Centre. He received his MSc from East China Normal University, Shanghai and his PhD from the University of Chicago, USA. Professor Fan has extensive experience in education and research in China, USA, Singapore and now the UK.

**Dr Amanda Simpson**
Teacher Support Series Editor

“Teachers who work with The Shanghai Maths Project for any length of time will find that their knowledge grows and their confidence grows and this can only be good for children.” Dr Amanda Simpson

Dr Amanda Simpson, is an expert in the teaching of primary mathematics and a mastery specialist. She holds a PhD in children’s mathematics development, and is the former Director for Primary at the National Centre for Excellence in the Teaching of Mathematics (NCETM).
The NEW Shanghai Maths Project
Teacher’s Guides will fully support you in delivering the Maths Programme of Study as part of a mastery approach to teaching.

- The **two Teacher’s Guides for each year** ensure complete coverage of the Curriculum
- A **comprehensive introduction** covering mastery guidance, variation theory and the concrete-pictorial-abstract (CPA) approach will strengthen teachers’ knowledge
- Teachers will be well-supported using the recommended **teaching sequences and planning support**
- Teacher’s Guides Units correspond to the Practice Book Units providing **step-by-step mastery instruction and guidance**
- Activities cover **whole-class instruction, same-day intervention and enrichment**

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**The Teacher’s Guides can also function as an independent CPD resource for teaching for mastery**
Conceptual contexts summarise the conceptual learning that will take place in each unit and provide explanations of mathematical contexts.

The What learning... section indicates how skills and concepts will have formed and developed during work on particular questions within a Unit.

Teacher Support

2 Teacher's Guides per year group

Unit 2.1 Number bonds

Learning pupils will have achieved at the end of the unit

- Pupils will have been introduced to the underlying patterns of partitioning numbers to 10 (Q1)
- Pupils will have consolidated their understanding of part–whole relationships (Q2)
- Pupils will have formed and developed a mental strategy for partitioning numbers to 10 (Q2)
- Pupils will have consolidated their recording of part–whole relationships in an abstract format (Q3)
- Pupils will have successfully completed the activity and developed the skill of working systematically since this will be of use throughout mathematics. It will support pupils in recognising patterns in tables in the Practice Book, as well as the patterns in the class. Pupils will have begun to develop strategies to partition numbers to 10 (Q1)
- Pupils will have been introduced to the underlying patterns of partitioning numbers to 10 (Q1)
- Pupils will have consolidated their recording of part–whole relationships in an abstract format (Q3)
- Pupils will have successfully completed the activity and developed the skill of working systematically since this will be of use throughout mathematics. It will support pupils in recognising patterns in tables in the Practice Book, as well as the patterns in the class.

Activities for whole-class instruction

- Set up a partitioning tree with pupils on a noticeboard. Ask pupils to say how many objects there are on the top box of the tree. Ask what is the whole? What is one part? Write the part and the whole. Ask pupils to say how many objects there are on the bottom box of the tree. Ask what is the whole? What is one part? Write the part and the whole.
- Complete moving one pupil at a time and verbalising the sentence, for example: There are four children on one mat and four children on the second mat. Ask pupils to say what they see in a complete sentence, for example: There are four children on one mat and four children on the second mat.
- Encourage moving one pupil at a time and subitising the number of objects, for example: There are six objects on the top box of the tree. Ask pupils to say what they see in a complete sentence, for example: There are six objects on the top box of the tree.
- Ask pupils to work systematically beginning with all the numbers on one plate and moving these numbers to different plates. Encourage pupils to keep a record of their working, whether in a partitioning tree or a different format, explaining what they are doing.

Knowledge of number bonds to 10 is a vital mental mathematical concept. It will underpin the use of factors, common multiples, and deepening pupils' understanding of part–whole relationships.

Unit 2.1 Practice Book 1A, pages 39–40

Unit 2.1 Practice Book 1A, pages 39–40

Question 1

Count up to 10 using your fingers. Model back to the pupils:

- There are four children on one mat and four children on the second mat.
- Ask pupils to say what they see in a complete sentence, for example: There are four children on one mat and four children on the second mat.
- Ask pupils to call up a second partitioning tree. Complete this together alongside the image.
- Choose a number, for example, 5, and move one pupil onto the empty mat. Explain that this is a further image of the same thing.
- Ask pupils to call up a second partitioning tree. Complete this together alongside the image. Place six objects in the top box of the partitioning tree. Add a blank partitioning tree. Pupils complete this for you. The whole is 6. Ask pupils to say how many objects they see. Write the part and the whole.
- Using your chosen format of parts and whole, for example, 3 and 3 or 2 and 4, pupils complete the blank partitioning tree. Pupils write the missing number or numbers in a complete sentence, for example: There are four children on one mat and four children on the second mat. Ask pupils to say what they see in a complete sentence, for example: There are four children on one mat and four children on the second mat.
- Ask pupils to work systematically beginning with all the numbers on one plate and moving these numbers to different plates. Encourage pupils to keep a record of their working, whether in a partitioning tree or a different format, explaining what they are doing.
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www.collins.co.uk/TheShanghaiMathsProject
The Shanghai Maths Project Practice Books and Learner Books will enable all your pupils to fully master the Maths Programme of Study.

Practice Books 2nd Editions

- With graded arithmetic exercises and varied practice of key concepts, the Practice Books promote deep learning and develop higher order thinking
- Your pupils will practice their maths skills through exercises which build upon small steps of carefully measured progression
- The end of unit tests and an end of year test provide opportunities for pupils to consolidate their learning

Teach Primary review of the 1st edition Practice Books:

' [The Practice Books] are of 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 ideas...Workbooks like these could help turn around the UK’s well-documented failures in basic numeracy.'
Pupil Resources

Learner Books

These pupil textbooks provide further support for pupils when using the Practice Books.

- All the maths facts and images that children need to master the Maths Programme of Study for each year are included
- A full pictorial glossary of mathematical terms provides definitions and images to explain key mathematical vocabulary

Sample pages from Learner Book 1

www.collins.co.uk/TheShanghaiMathsProject
Homework Guides

- A photocopiable master book for each year to support classroom and home learning
- Exercises are directly linked to the Practice Book Units allowing pupils to consolidate learning at home
- A home activity is included on each page providing an idea for practical maths that a parent or guardian can do with the child

Digital Resources on Collins Connect

- PDF and editable word versions of the Teacher’s Guides and Homework Guides provide flexibility allowing you to tailor resources to suit your pupils’ needs
- Plan lessons effectively using the Planning Tool
- Ensure coverage of the National Curriculum using the Record-Keeping Tool
- Engage your pupils through interactive maths tools, slides, resource sheets and images
- Book view enables you to display the Learner Book on the whiteboard, ideal for front-of-class teaching

5.10 Mathematics Playground (3)

Use the number bonds to add and subtract numbers to 20

1. Complete the number track.

```
<table>
<thead>
<tr>
<th>IN</th>
<th>OUT</th>
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<tbody>
<tr>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>11</td>
<td>12</td>
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<td>12</td>
<td>13</td>
</tr>
<tr>
<td>13</td>
<td>14</td>
</tr>
</tbody>
</table>
```

2. Write the numbers coming out of these machines.

```
IN OUT
--- ----
| 4    |
| 5    |
| 6    |
| 7    |
| 8    |
| 9    |
| 10   |
| 11   |
| 12   |
| 13   |
| 14   |
```

Number machines

Use the number machines, one at a time, to make number bonds to 20. Give the box a rule, such as ‘Subtract 4’ and change the starting number and the number subtracted so your child can work out the number coming out of the machine. Ask your child to work out the result and then add the number that is coming out back through the machine. The box shows which addition is the inverse of subtraction.

Sample page from Homework Guide 1
# How is The Shanghai Maths Project Structured?

<table>
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<th>Year 1</th>
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Also available in this series
- includes end-of-unit tests and an end-of-year test.
- provides exercises that build upon small steps of carefully measured progression
- offers full coverage of the Year 1 English National Curriculum objectives for maths

The Shanghai Maths Project Year 1 Practice Book:
- Based on maths teaching in Shanghai, this series of practice books for years 1–11 will provide complete coverage of the English National Curriculum.
- This book is a collaboration between Collins and East China Normal University Press Ltd. to adapt their bestselling programme One Lesson, One Exercise for England.

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<tr>
<td>Teacher’s Books (2 per year) RRP: £100.00 each</td>
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