

Collins

Maths Frameworking

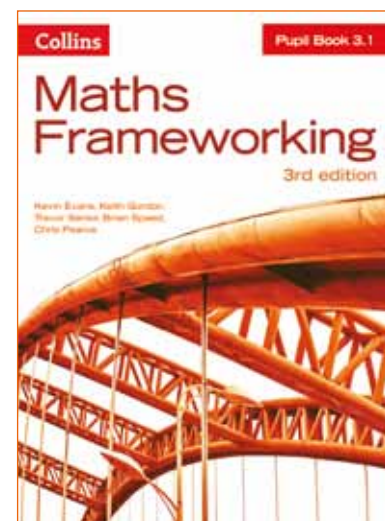
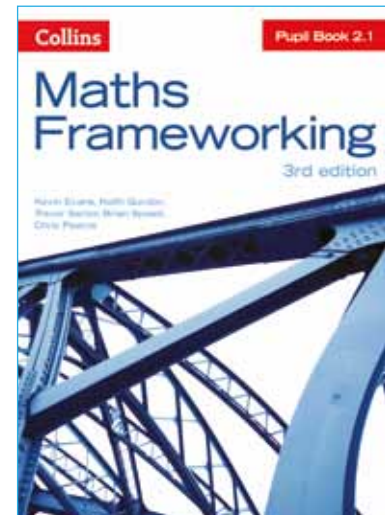
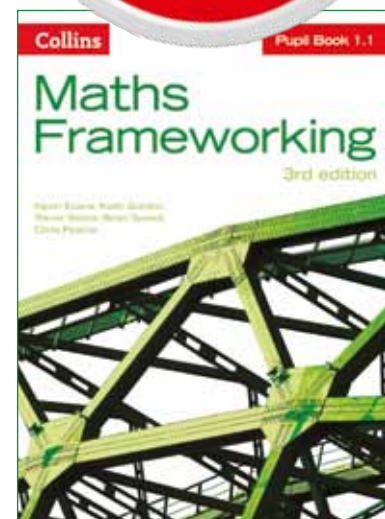
3rd edition

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TREVOR SENIOR, CHRIS PEARCE

The right progression for all levels.

- Enable all students to progress with fully differentiated resources
- Teach flexibly with resources that work well for both a 2-year and 3-year Key Stage 3
- Allow students to consolidate and embed their learning with thousands of practice questions and worked examples

3rd Edition
of the market
leading Key
Stage 3 Maths
course fully
updated for the
2014 curriculum



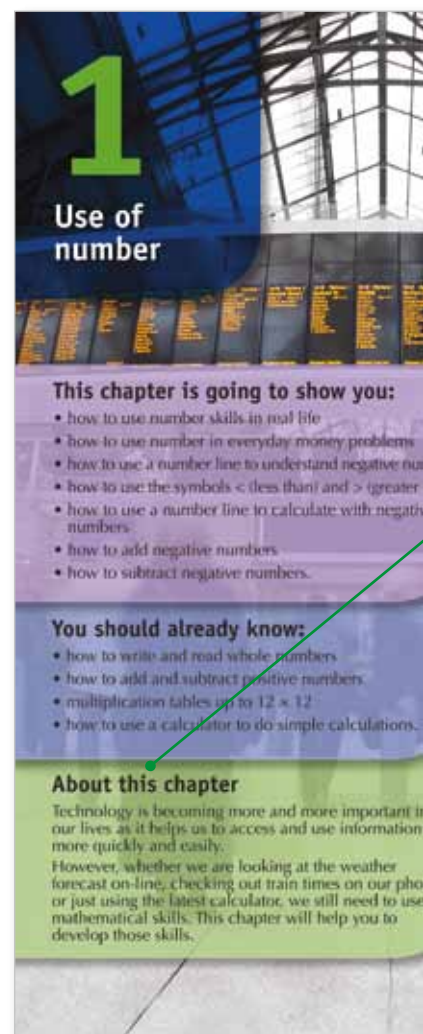
www.collins.co.uk/newcurriculum

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Maths Frameworking 3rd edition is better than ever. Here's how:

- Enable your students to develop their problem-solving and mathematical reasoning skills, with dedicated practice questions flagged throughout the books
- Break up lessons and maintain students' interest in mathematics with longer tasks which are relevant to real-life, including investigations, challenges, practical activities, problem-solving, financial skills and mathematical reasoning tasks
- Encourage students to make links between different areas of mathematics with synoptic questions included at the end of every chapter
- Provide students with the practice they need with accessible Homework Books. The dedicated Skills Booster Book will support your students in developing the skills they need for GCSE
- Take action when students are not making the required level of progress with one-to-one Intervention Workbooks that focus on basic skills and mathematical fluency
- Inspire and engage students with brand new digital resources to motivate and encourage independent learning. Our digital resources also include automarked homework and assessments to support teachers too!



Take a closer look at the Pupil Books ...



Inspire pupils with a chapter opener that puts maths in context

Focus on literacy skills with key words for each topic and a glossary included

Achieve fluency through plenty of practice questions and worked examples

1.1 Timetables, charts and money

Learning objectives

- To be familiar with everyday uses of tables and charts.
- To carry out calculations from information given in tables and charts.

Keywords

24-hour clock, chart, timetable

You use mathematics every day, often without realising it. When you work out times and distances, read **charts** and spend and save money you are using mathematical skills.

Timetables

Timetables always use the 24-hour clock to show the time, so that you know whether a time is morning or afternoon. You need to know how to read **24-hour clocks** as well as 12-hour clocks.

Example 1

It is quarter past one in the afternoon.
How many ways can you show this time, using 12-hour and 24-hour clocks?



Example 2

Here is part of the Eurostar timetable for journeys from London to Paris.

a Which of these journeys takes the shortest time?

b Pierre arrives at the station in London at 09:40.

How long does he have to wait for the next train to Paris?

a The 11:31 from London that arrives in Paris at 14:47 takes 2 hours 16 minutes.

b The next train is at 10:25, so Pierre has to wait from 09:40 to 10:25 which is 45 minutes.

Timetables appear in many different ways.

Departure time	Arrival time	Duration
09:17	12:47	02 h 30 m
10:25	13:47	02 h 22 m
11:31	14:47	02 h 16 m

Example 3

Look at this picture. What time is the train to Epping due?
Give this time according to both the 24-hour and the 12-hour clock.
The time on the board is 20:20. The train is due in 12 minutes.

So the train is due at 20:32, or 8.32 pm.

Charts

Maps often have charts attached to them, showing the distance between key places.

Thames Valley University Park	5 mins
10 Epping	12 mins
Central Line	20:20

Example 4

The table shows the flight distances, in kilometres, between four cities.

Abu Dhabi	Brussels	Cairo	Dublin
	3158		
		3212	
			776
			1977
Abu Dhabi	Brussels	Cairo	Dublin

a How many kilometres is it from Brussels to Cairo?

b Which two of these places are furthest apart?

a The distance from Brussels to Cairo is 3212 km.

b Abu Dhabi and Dublin are furthest apart (3924 km).

Planning and making purchases

Information about prices is often given in tables, to make it easier to read.

Example 5

A park hires out bicycles. These are the prices.

Hire period	Bicycle	Tandem
2 hours	£7.50 adult £5.00 child	£11.50
All day	£15.00 adult £10.00 child	£25.00

a How much does it cost to hire bicycles for 2 hours for 1 adult and 2 children?

b How much more does it cost to hire a tandem for a whole day than for 2 hours?

a Total cost is £7.50 + £5.00 + £5.00 = £17.50

b A tandem costs £25.00 for all day but £11.50 for 2 hours so the difference is £25.00 - £11.50

Bank statements

A bank statement gives you detailed information about your bank account. It shows how much money has been paid in or out of the account. The amount of money remaining is called the balance.

Measure progress with 'Ready to progress?' learning outcomes at the end of the chapter

Samples from **Collins Maths Frameworking Pupil Book 1.2.**

Want more information?

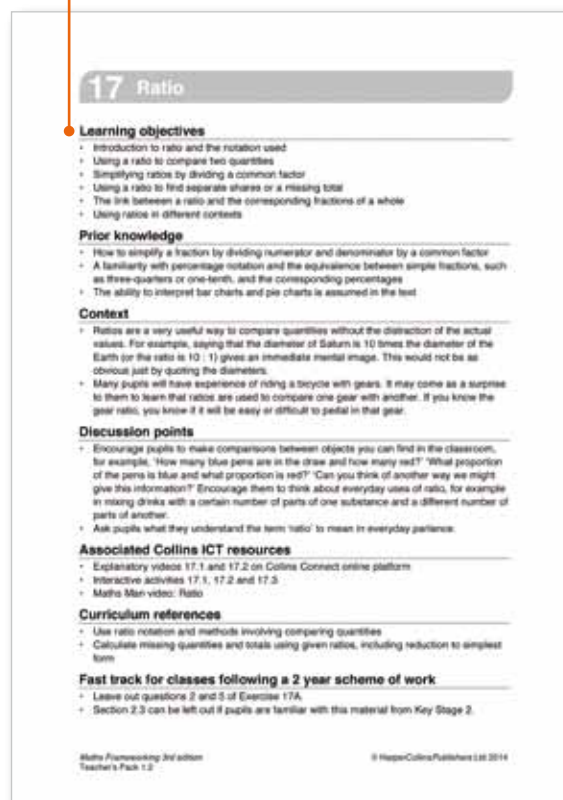
Email education@harpercollins.co.uk or phone **0844 576 8126**

Make planning simple with detailed, practical schemes of work for 2 and 3-year Key Stage 3. Detailed lesson plans are provided that can be customised and edited easily and also provide support for new teachers and cover lessons.

- Understand the aims of the new Programme of Study from clear guidance in the introduction
- Gain ideas on best practice with Ofsted guidance on how to measure progress, implement useful marking and feedback, appropriate homework setting, and more
- Ready-made introduction to the scheme, designed specifically for parents, that can be customised and published on school's website or given out at parents' evenings
- Marking is simple, with all answers to the Pupil Books included
- Monitor progress with progression maps included

Support lesson planning and get with dedicated Teacher Packs ...

Support delivering fluency, problem-solving, reasoning and financial skills

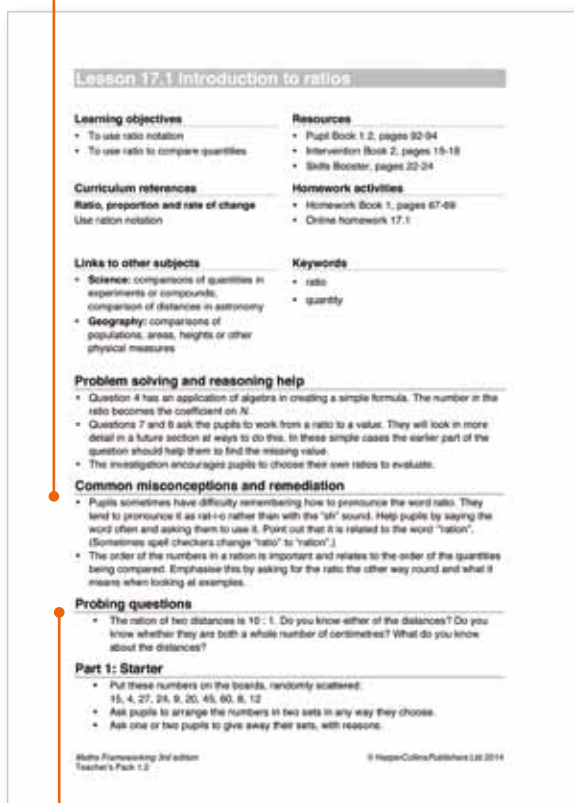


Reviews
from the
previous
edition:

*"This book is excellent.
There's plenty of
questions and
problems to solve"*

the most from Maths Frameworking

Identify common misconceptions and advice on how to correct them



Challenge students with probing questions

About the Authors

Keith Gordon

Keith is an experienced author, examiner and education consultant.

Kevin Evans

After 25 years as a Head of Mathematics in Leeds High Schools, Kevin is now a part-time Mathematics Intervention Teacher. He has many years experience as a senior examiner for GCSE Mathematics. He is now a well established author writing material for KS3 and GCSE Mathematics resources.

Brian Speed

Brian has written a number of education textbooks. He was also a maths teacher for 28 years, rising to Head of Department. He is an examiner for a major awarding body.

Trevor Senior

A leading author of Maths textbooks and revision guides for KS3 and GCSE, Trevor is also a senior examiner for a major awarding body. Previously, Trevor was Head of Maths in two different secondary schools.

Chris Pearce

Chris Pearce has over 30 years experience teaching Maths in secondary schools. He worked as an adviser with the National Maths Strategy for over five years. He has written a number of textbooks and other Maths resources. He has worked as a consultant in the Middle and Far East.

"I have been really impressed with the scheme so far. Our NQTs love the lesson plans and say they really help with ideas and finding out what sort of level to teach a topic ... Our only problem is that we struggle to get [our students] to stop working and move on to their next lesson!"

Want more information?

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Teach Key Stage 3 Maths flexibly and in a way that suits your students, with a full suite of digital resources.

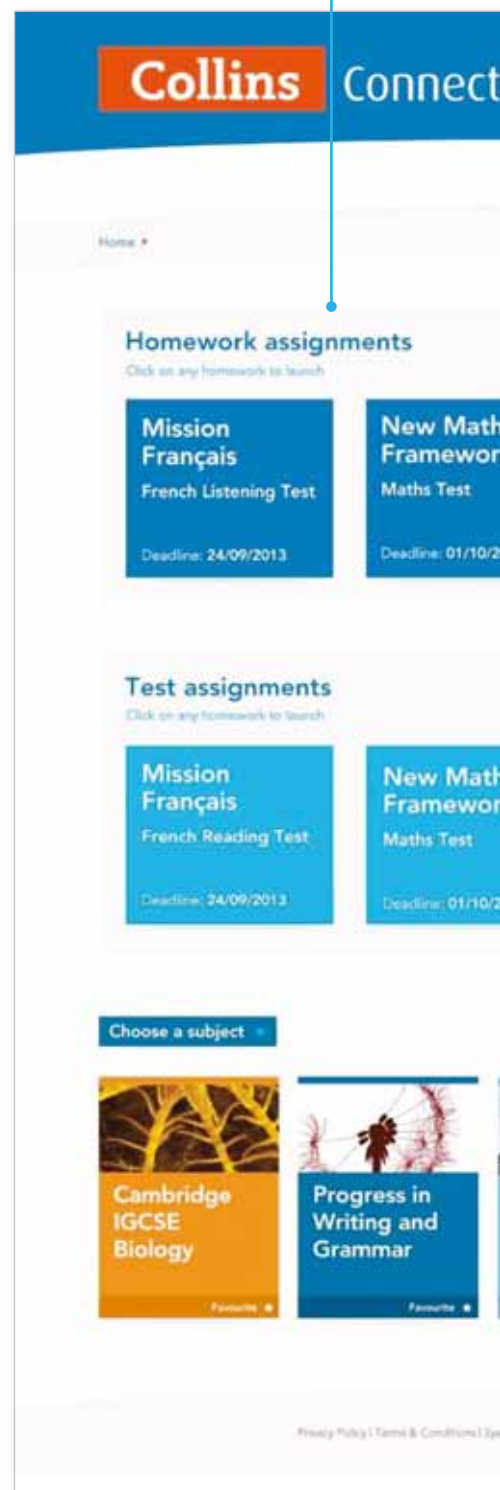
Powered by the new **Collins Connect** platform, you'll be able to access **Collins Maths Frameworking Pupil Books** online making it ideal used as a front of class teaching school and as a way to set homework and assessments.

Trial **Collins Connect** completely free. Just visit connect.collins.co.uk/secondary-teaching-resources

- Set up is straightforward and there is the option to synchronise **Collins Connect** with SIMS so all data on individual students can easily be accessed from within the platform
- Easily launch videos, quizzes, interactive activities and more straight from the page
- Assign work to individuals or the whole class via your VLE or by email in just a few clicks

Digital resources for **Collins Maths Frameworking** have been carefully selected to improve and build on key skills in maths such as fluency, problem-solving, correcting common misconceptions, using the correct vocabulary, applying maths to real-life scenarios, and to encourage independent learning.

Easy to navigate – users can find topics and tasks quickly and easily



Personalised dashboard for each student and teacher, clearly shows homework and tests due to be completed

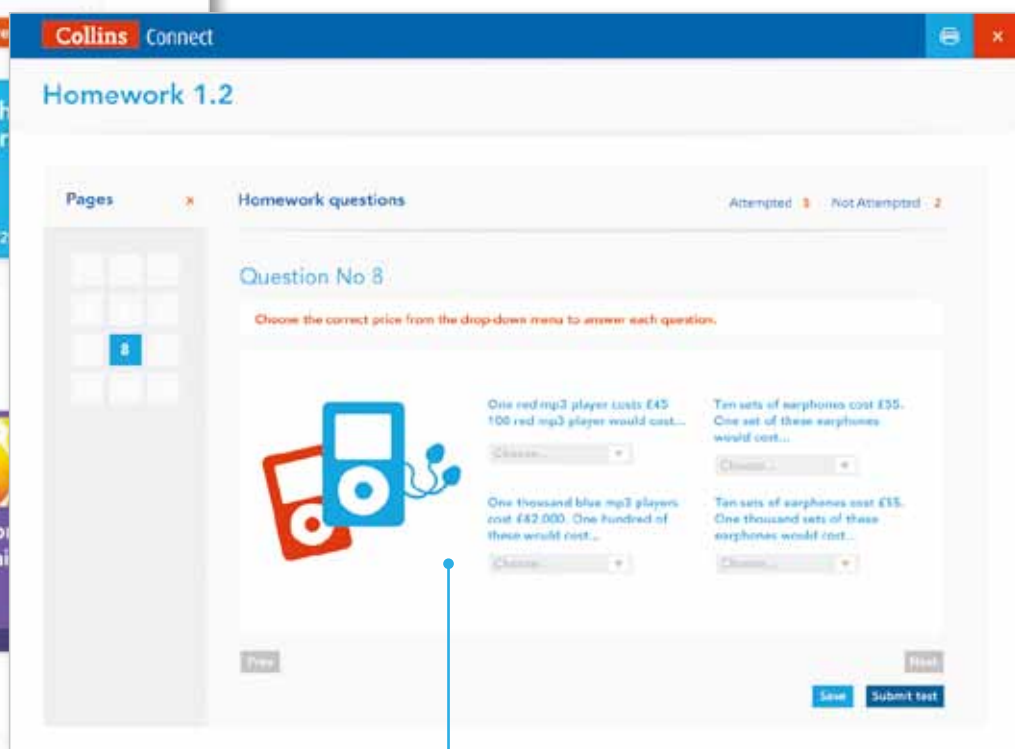
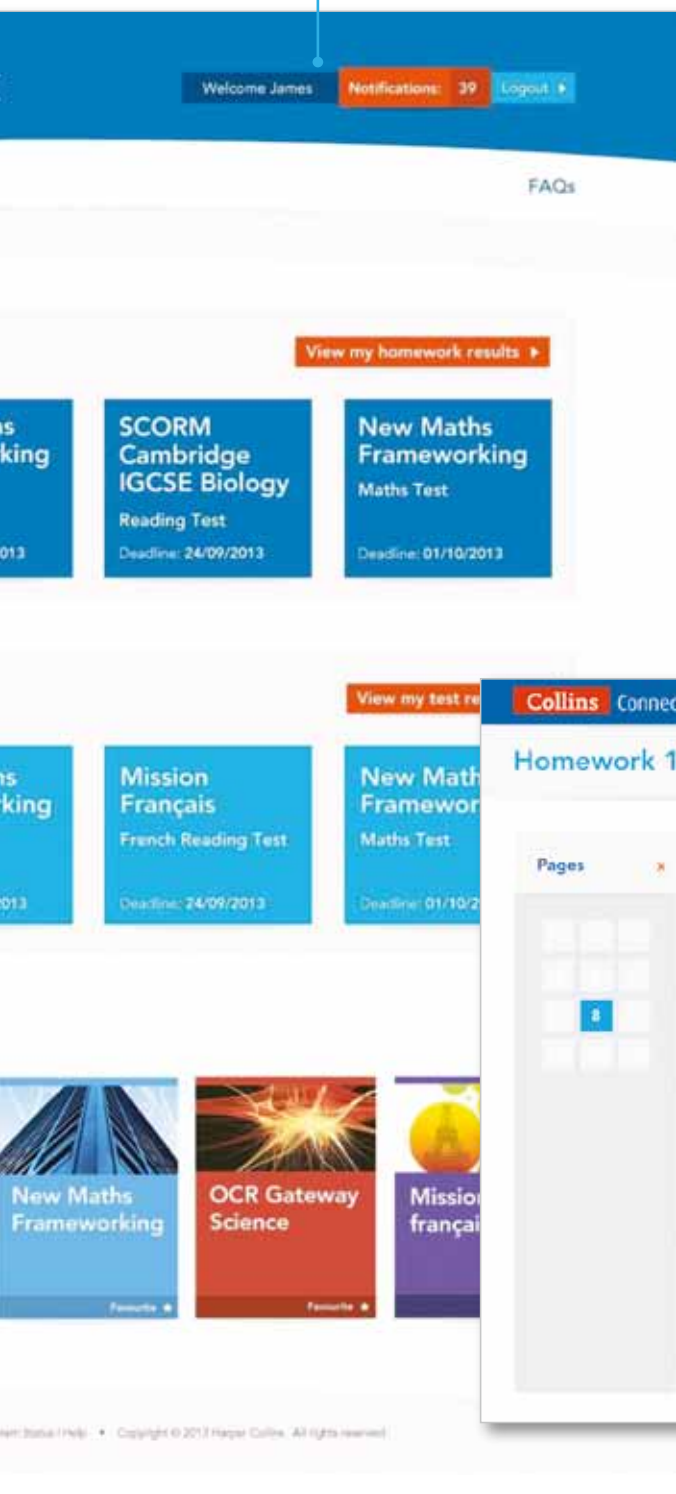
Exciting new digital resources for Collins Maths Frameworking

Key features

Interactive Skills Builder allows pupils to experiment with equations, ratio and proportion – and enables them to discover these topics for themselves by building and solving their own problems using our interactive set of scales!

Wonders of Maths – an image and video bank to engage pupils with real-life examples of how maths works

Explanation videos and worked examples – student-led explanations of tricky concepts and real-time walkthroughs of questions plus additional practice supports students to develop conceptual understanding



Collins Connect also contains a bank of automarked homework and assessment questions

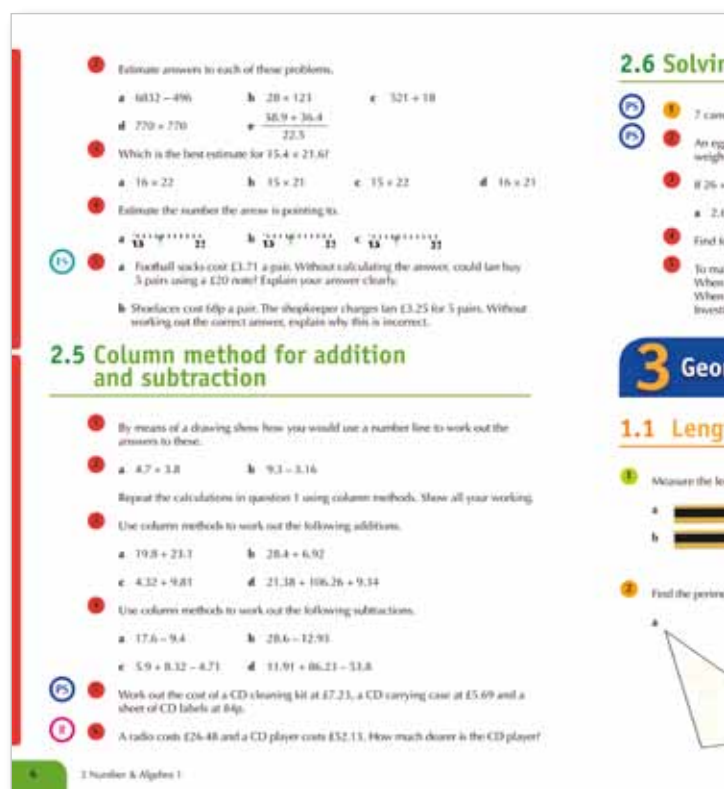
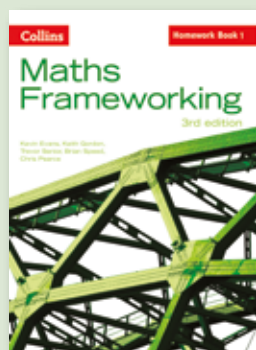
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Help students make progress with dedicated homework and assessment ...

Homework Books

- Ensure students get plenty of practice with a structured way of setting homework
- Set differentiated homework as more accessible questions come first and the level of difficulty is clearly indicated
- Suitable for use with mixed ability students with questions to reinforce core topics, provide consolidation and stretch and challenge
- Set homework in a way that suits you and your students with a choice of digital or print delivery
- Access answers online



Sample from **Homework Book 1**

Online Automarked Homework

Powered by **Collins Connect**

- Save time with homework tasks that can be automarked for every topic in the Pupil Books
- Build an ongoing picture of progress with tracking and diagnostic feedback at a class and pupil level
- Cater for all abilities with questions at a range of different levels

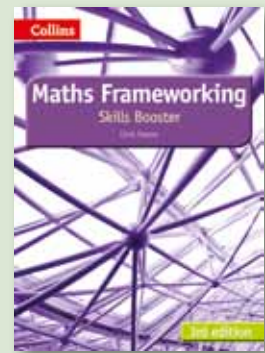
Online Assessment

Powered by **Collins Connect**

- Focus on assessment right from the start with half termly tests and end of year tests
- Look at progress at regular intervals with tests that check understanding across a range of topics
- Prepare for the revised GCSEs with questions that are similar in style
- Identify next steps with clear links from feedback back to content

Skills Booster

- Build problem-solving and mathematical reasoning skills with extra targeted practice
- Develop GCSE-style skills with longer, more descriptive questions from the start of Year 7
- Use flexibly in the classroom or for homework
- Help students to make connections across maths with plenty of mixed questions
- Access answers at the back in a tear-out section



ing problems

of beams weigh 1250 g. How much do 9 cans weigh?

ing box containing 2 eggs weighs 140 g. The same egg box containing 3 eggs
+ 195 g. How much does an egg box containing 5 eggs weigh?

152×3952 , write down, without calculating, the value of:

152×3952 152×3952 152×3952

our consecutive even numbers that add up to 60.

le a number chain, start with any number.
the number is even, divide it by 2 and subtract 1.
the number is odd, subtract 1 and double the answer.
figure which numbers give the longest chains.

metry and Measures 1

th, perimeter and area

lengths of these pencils, giving your answers in centimetres.



tion of these shapes by using your ruler to measure the length of each side.



1.1 Length, perimeter and area

Challenge your high ability students with brain teasers

1.2 Perimeter and area of rectangles

● Find the perimeter of each rectangle.

● Find the area of each rectangle.

a.

b.

c.

d.

● A swimming pool is 8 m wide and 30 m long.

a. Find the perimeter of the pool.

b. Find the area of the pool.

c. Emma wants to swim 1 kilometre.

i. How many widths does she need to swim?

ii. How many lengths does she need to swim?

d. The floor of the pool is covered with square tiles of side 50 cm.

How many tiles cover the floor?

Brain teaser

● Use centimetre squared paper to draw three rectangles, each with area 24 cm².

● Find the perimeter of the following compound shapes.

● Find the area of the following compound shapes.

a.

b.

1.3 3-D shapes

● On squared paper, draw accurate nets for the following model storage boxes.

a.

b.

● Before are the nets of some solids. Describe each solid.

a.

b.

● Draw the following cuboid accurately on an isometric grid.

● Use an isometric grid to draw solids made up of:

a. 4 cubes b. 10 cubes

Questions that develop problem-solving skills highlighted

Sample from **Homework Book 1**

Want more information?

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Take action when students aren't making the required level of progress

One-to-one Intervention Programme – write-in workbooks for students that need extra support

Support teaching staff and parents with resources designed to be used one-to-one to provide students with focused support to overcome identified weaknesses.

- Deliver quick and early intervention at any point in KS3 or GCSE with practical write-in workbooks
- Get the scheme up and running quickly with guidance on hours of work and advice for teachers and parents on giving feedback
- Focus on improving the basic skills and fluency with quick tests included to enable students to practise mental maths
- Measure progress at the end of each strand with the comments, next steps and misconceptions box for teachers, teaching assistants or parents
- Celebrate progress with the certificate of achievement at the back
- Access answers online

Worked examples laid out clearly to aid understanding followed immediately by practice questions to help pupils embed their knowledge

Write-in workbook to motivate pupils

1 Number: calculation and approximation

1.1 Using place value to multiply and divide whole numbers by 10 or 100

I can
 • multiply a whole number by 10 or 100
 • divide a whole number by 10 or 100

Example 1
Example
 a. Karen has 165. How many pence is that?
 b. A plank is 3200 mm long. How many centimetres is that?

Solution
 a. There are 100 pence in one pound. Multiply by 100.
 $165 \times 100 = 16500$ 165 is 16500 pence
 b. One centimetre is 10 mm. Divide by 10.
 $3200 \div 10 = 320$ 3200 mm is 320 cm

Practice questions

1 Complete each of the multiplication grids below

\times	10	100
8		
30		
40		
75		

\times	10	100
5		
70		
200		
15		

\times	10	100
8		
30		
40		
75		

\times	10	100
5		
70		
200		
15		

1.1 Using place value to multiply and divide whole numbers by 10 or 100

Sample from **Intervention Workbook 2**.



Colne Community College, Brightlingsea

The Collins Maths Frameworking Intervention Programme has been developed in conjunction with the Head of Maths at Colne Community College. This school has recently achieved an outstanding Ofsted rating.